

**FREEDOM OF INFORMATION  
AND  
PRIVACY ACTS**

**SUBJECT: BARKER/KARPIS GANG  
BREMER KIDNAPPING**

**FILE NUMBER: 7-576**

**SECTION : BULKY BOX 3 PART 7**



**FEDERAL BUREAU OF INVESTIGATION**

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SUBJECT Barker/Karpis Gang (Bremer Kidnapping)

FILE NUMBER 7-576 Bulky Box 3 Part 7

SECTION NUMBER ✓

SERIALS ✓

TOTAL PAGES 303

PAGES RELEASED 303

PAGES WITHHELD 0

EXEMPTION(S) USED -

1933  
OFFICIAL HIGHWAY MAP  
of  
ROCK COUNTY, WISCONSIN

Issued by the  
Rock County Highway Committee

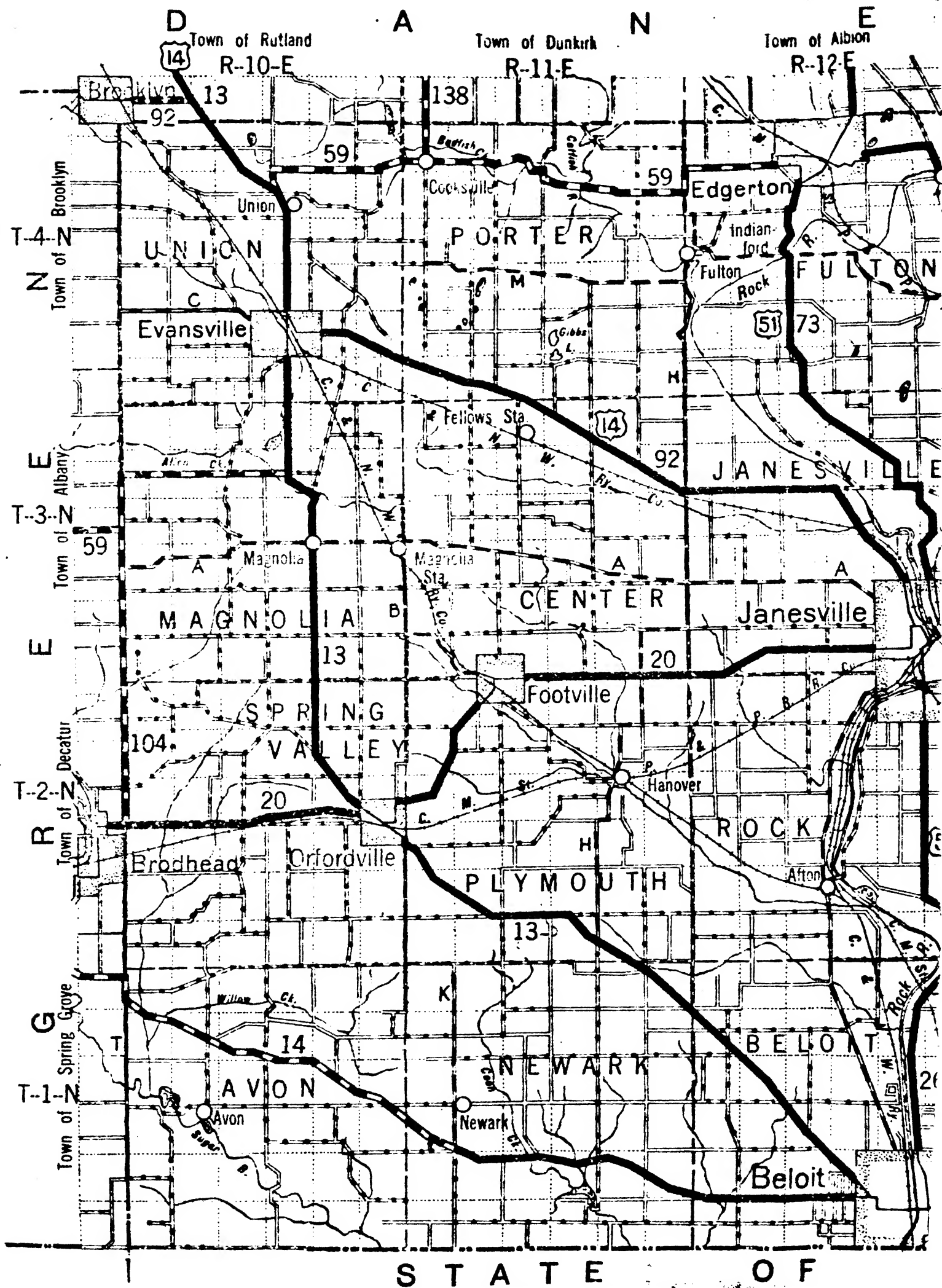
Janesville, Wisconsin

CLAS E. MOORE

SCALE 1 INCH = 2 MILES

COUNTY HIGHWAY COMMITTEE

J. A. M. ARTHUR, Chairman  
FRANK HOFFMAN  
T. K. HARTER



# LEGEND

## STATE TRUNK HIGHWAYS

Concrete

Bituminous & Crushed Gravel

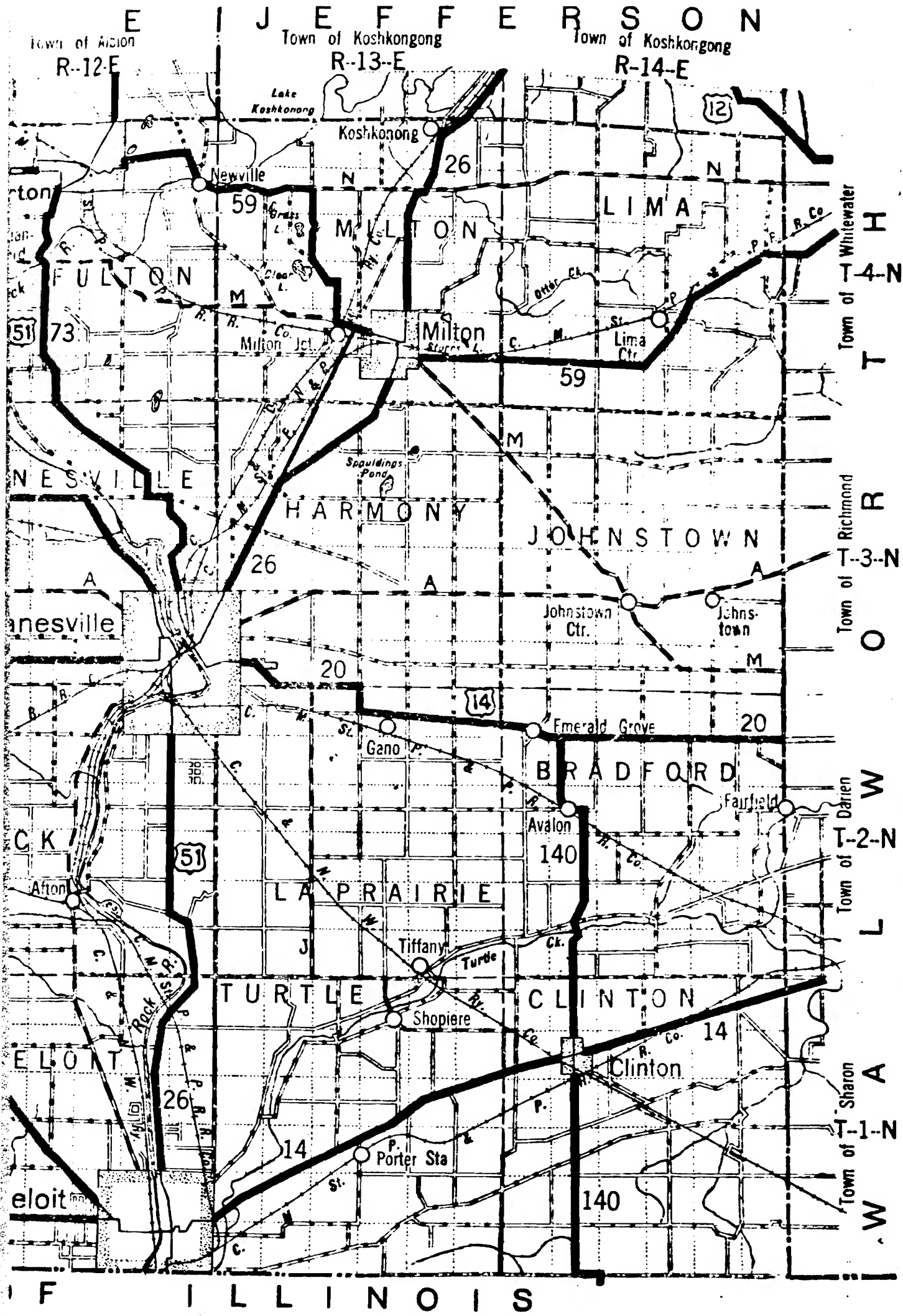
## COUNTY TRUNK HIGHWAYS

Concrete

Bituminous & Crushed Gravel

## COUNTY AID HIGHWAYS

## LOCAL ROADS



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OFFICIAL HIGHWAY MAP  
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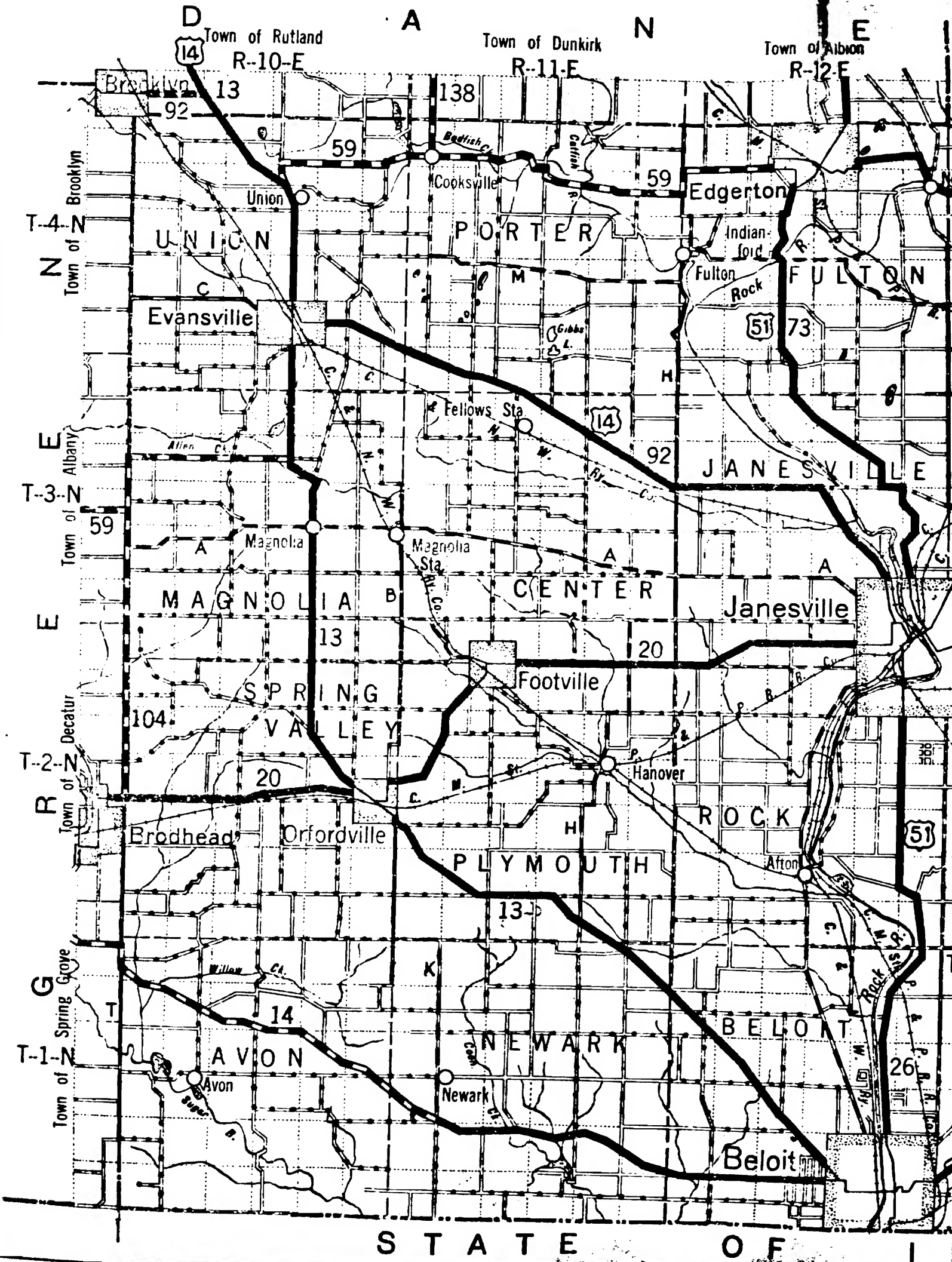
CHAS. E. MOORE,  
County Highway Commissioner

SCALE 1 INCH = 2 MILES

COUNTY HIGHWAY COMMITTEE

D. A. McARTHUR, Chairman  
FRANK HAFEMAN  
T. R. HARPER

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# LEGEND

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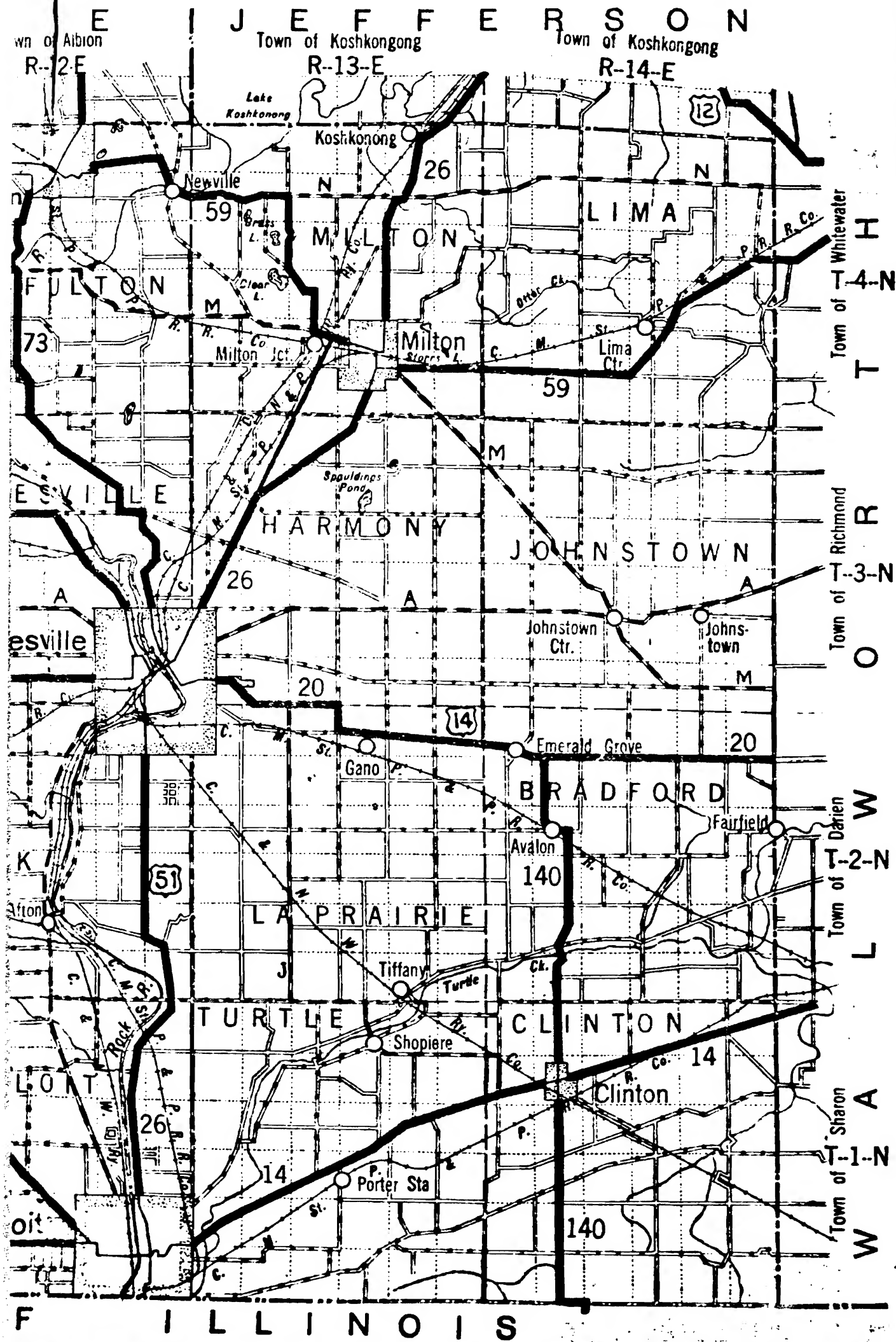
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## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

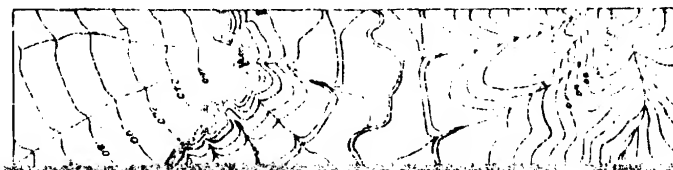
A topographic survey of Alaska has been in progress since 1898, and in July 1917 it was completed.

boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metaled roads are shown by double lines, one of which is accentuated. Other public roads are shown by fine double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,000 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

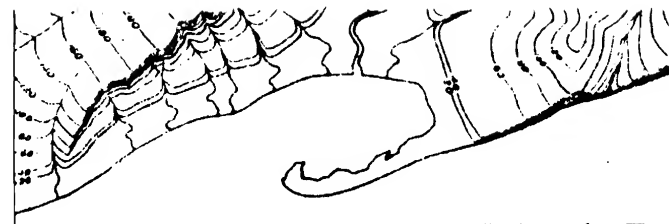
The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 200 folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices.

A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{100,000}$ .

About half of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at

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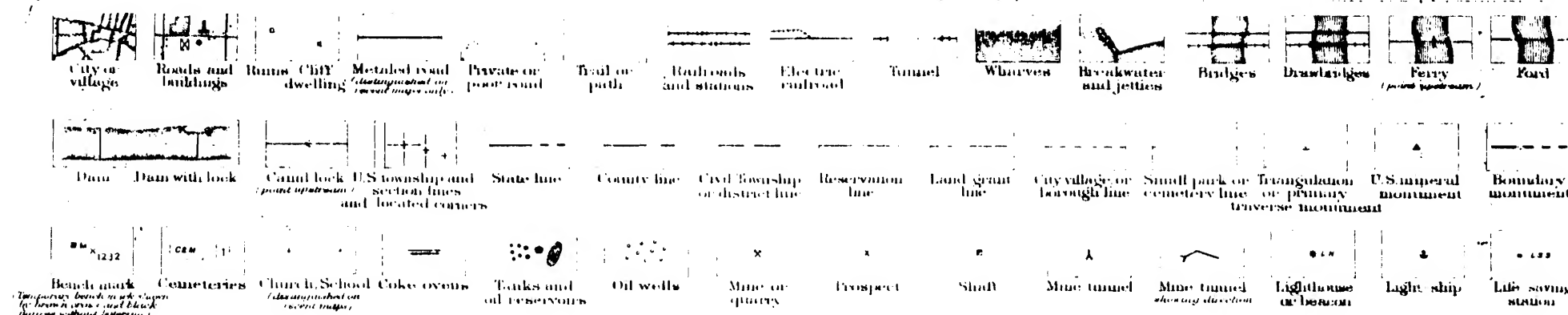
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

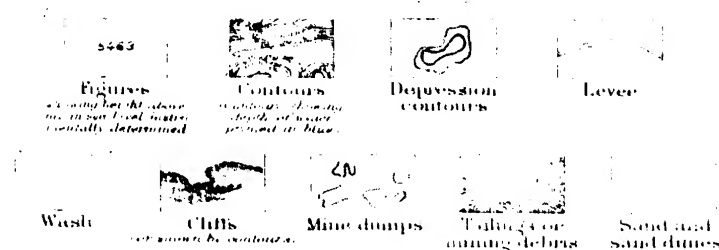
January, 1924.

## CONVENTIONAL SIGNS

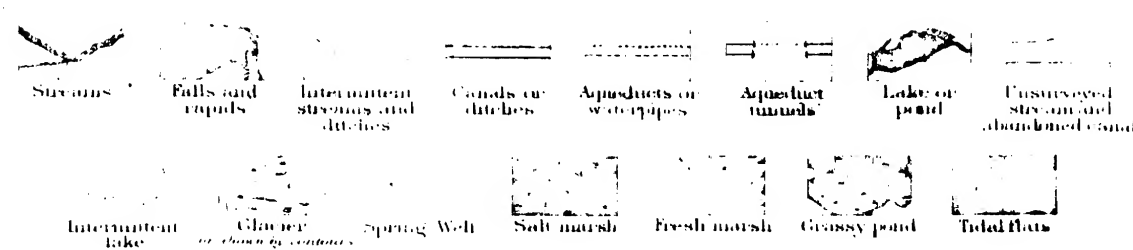
### CULTURE (printed in black)



### RELIEF (printed in brown)



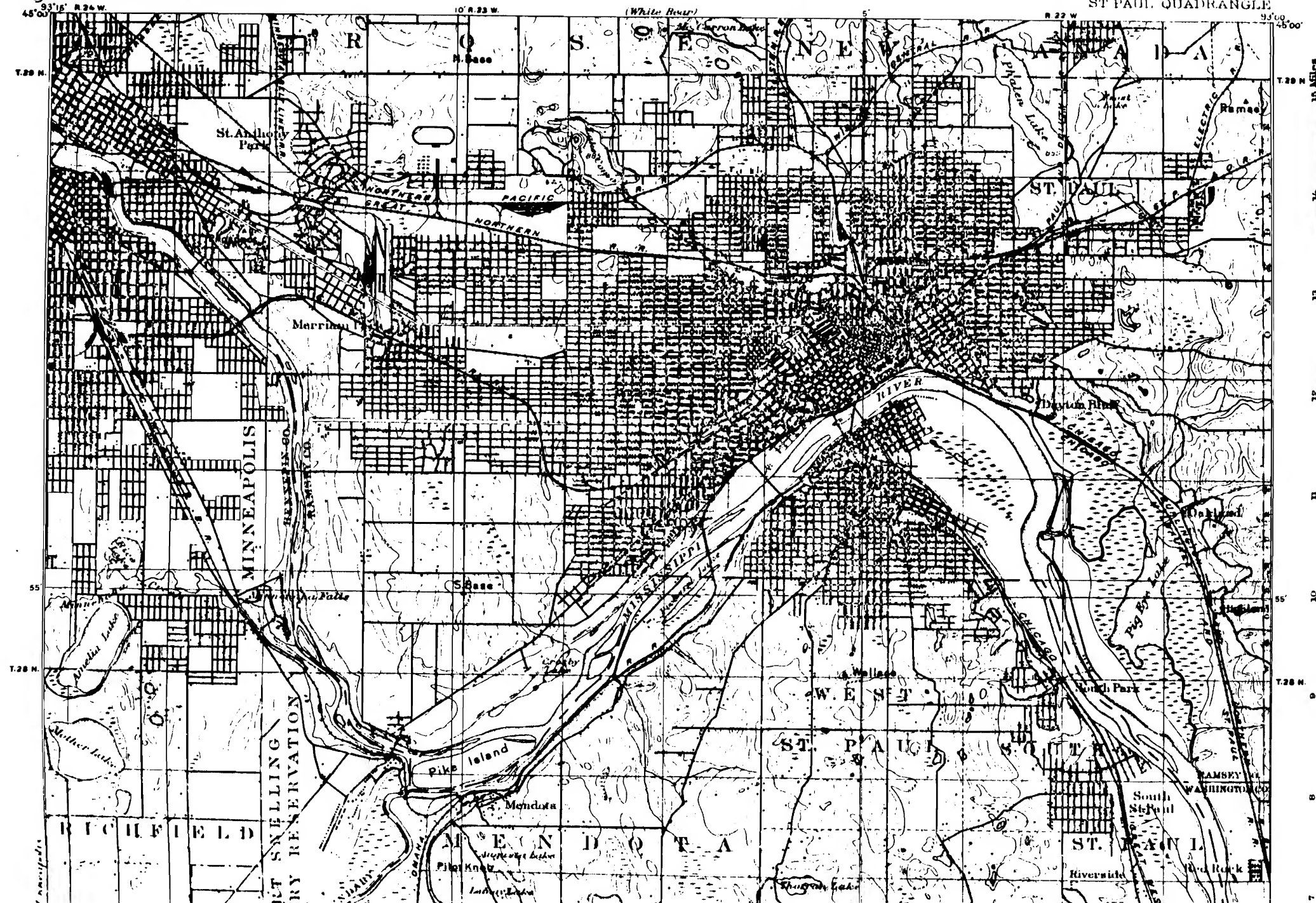
### WATER (printed in blue)



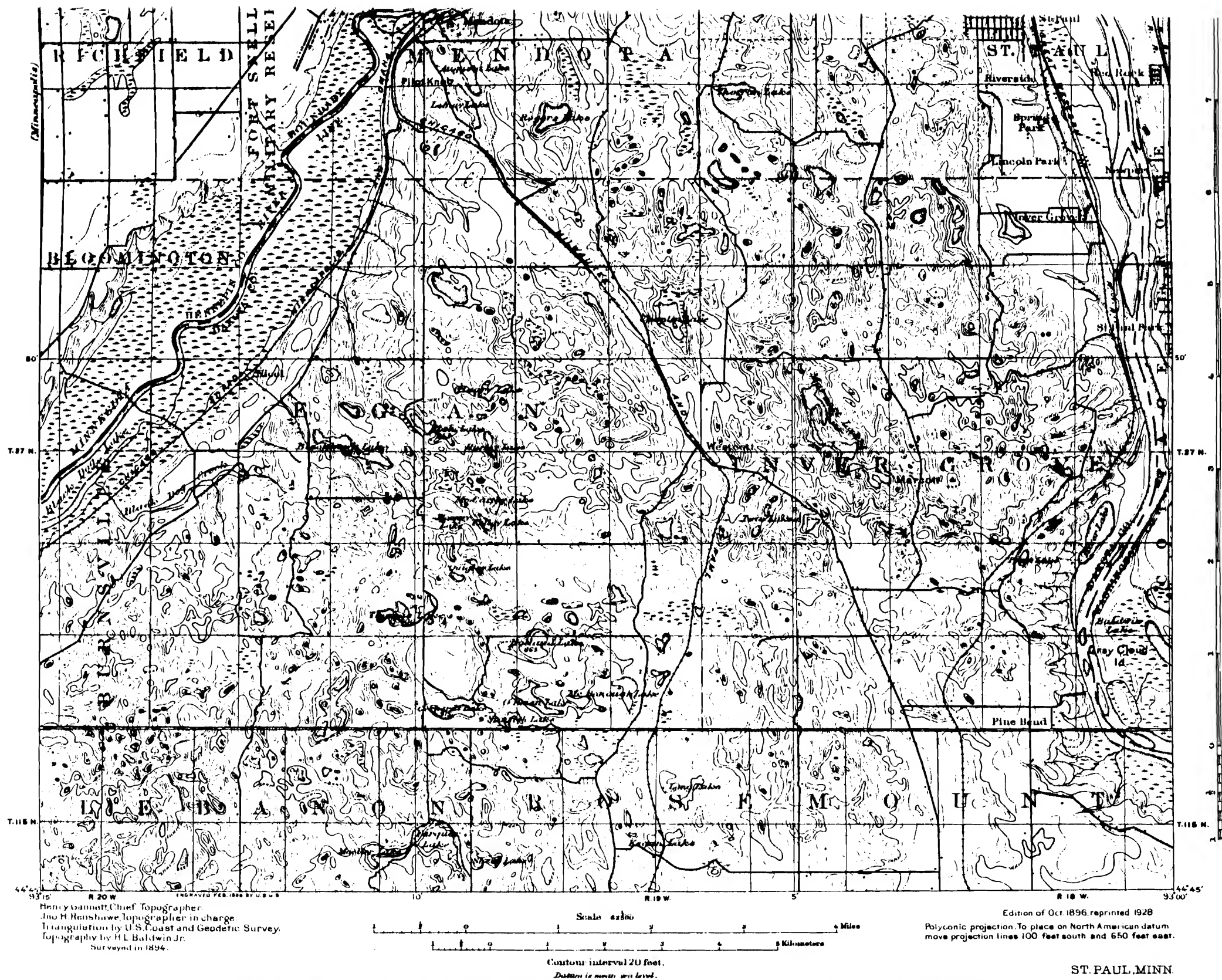
### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

MINNESOTA  
ST. PAUL QUADRANGLE







NOTE: Geologic Folio No. 201, price 25 cents, treats of the geology and the sand, gravel, building stone, road material, brick clay, and underground water resources of this area.

#22

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

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3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by recon-

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

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Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,500 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

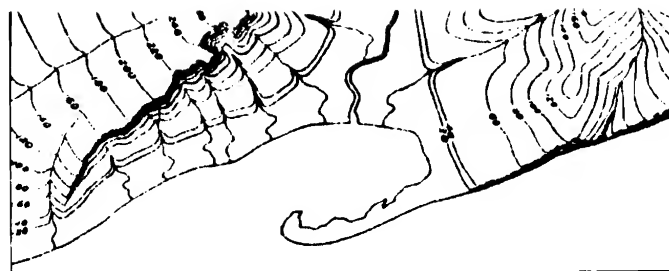
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The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

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The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping sides.

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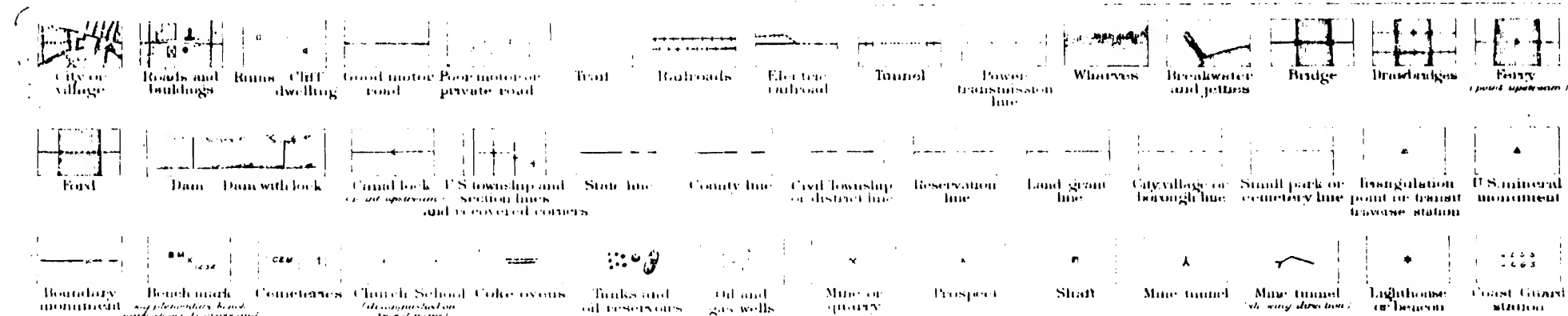
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September, 1928.

## STANDARD SYMBOLS

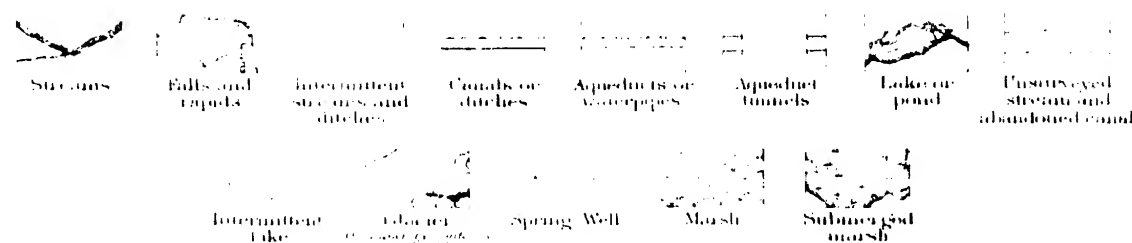
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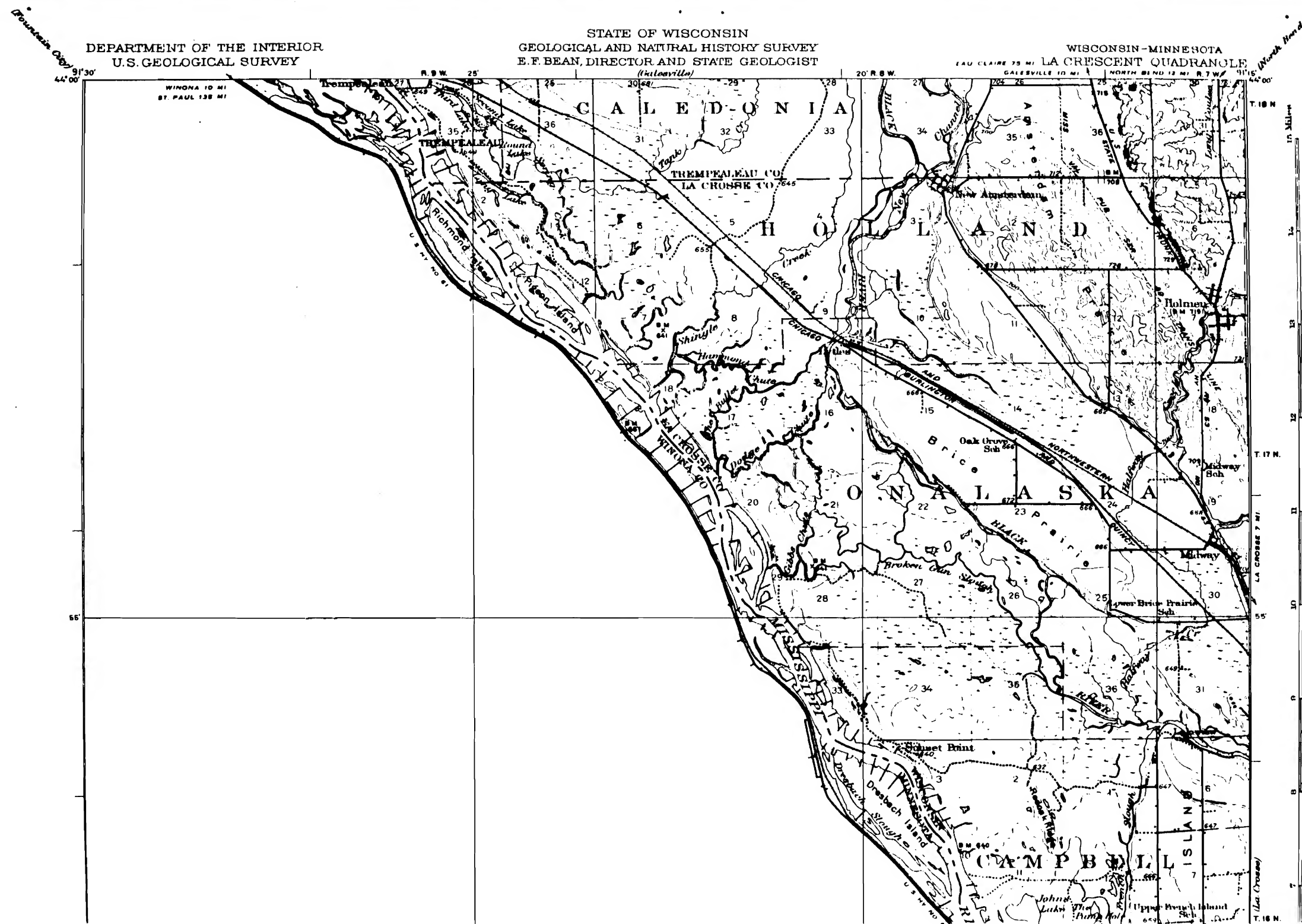
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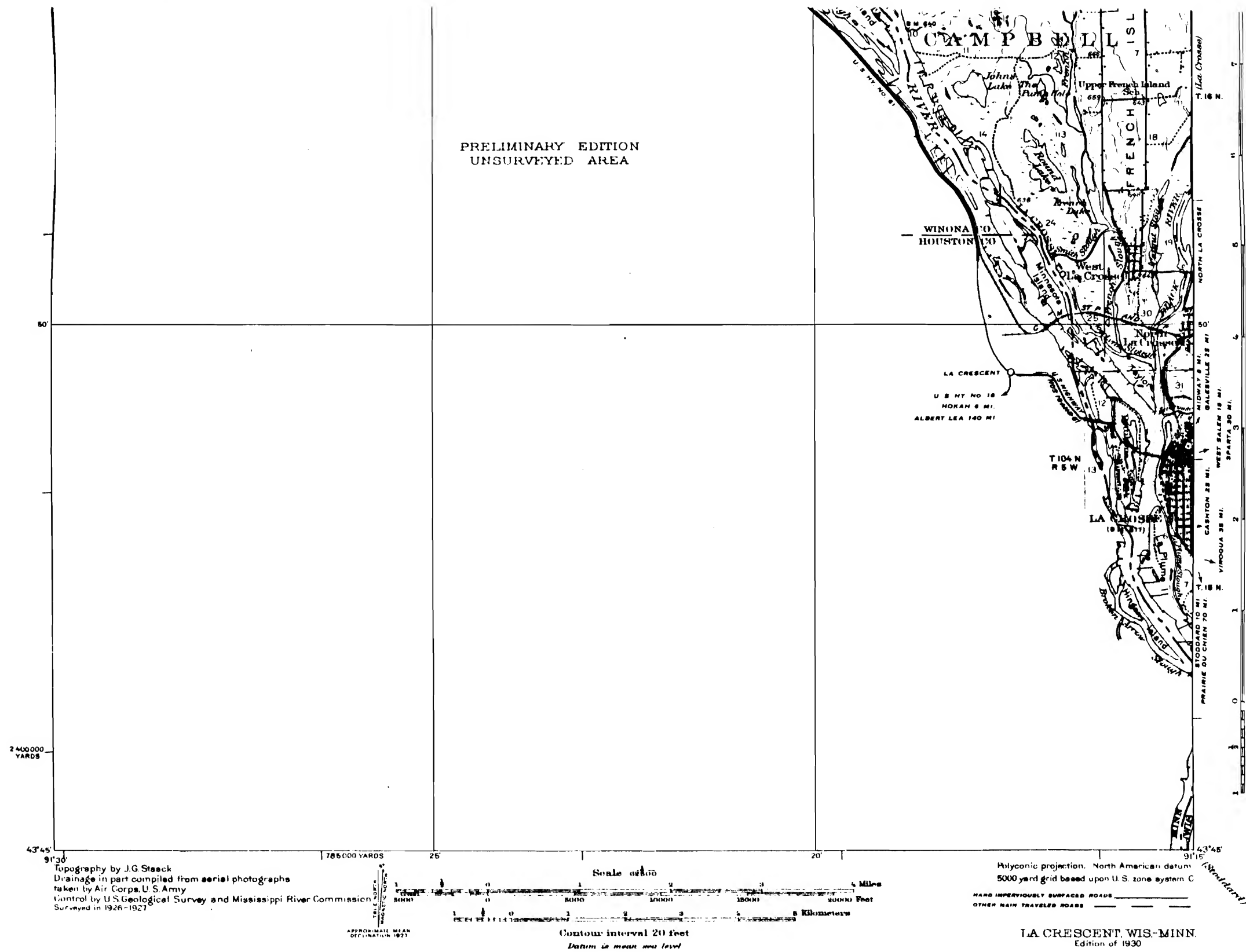


### WOODS (when shown, printed in green)

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
E. F. BEAN, DIRECTOR AND STATE GEOLOGIST

WISCONSIN-MINNESOTA  
A CRESCENT QUADRANGLE





#21



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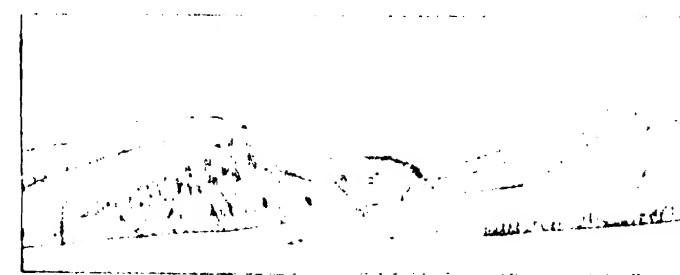
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Map of Alaska or New Mexico, the same with additional material to be used in the publication of maps on a scale of 1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

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The sketch represents a river valley that lies between two hills. In the foreground, the river flows in a straight line, but in the distance, it winds through the valley. The hills are represented by contour lines. The sketch is intended to illustrate the use of standard symbols for such features.

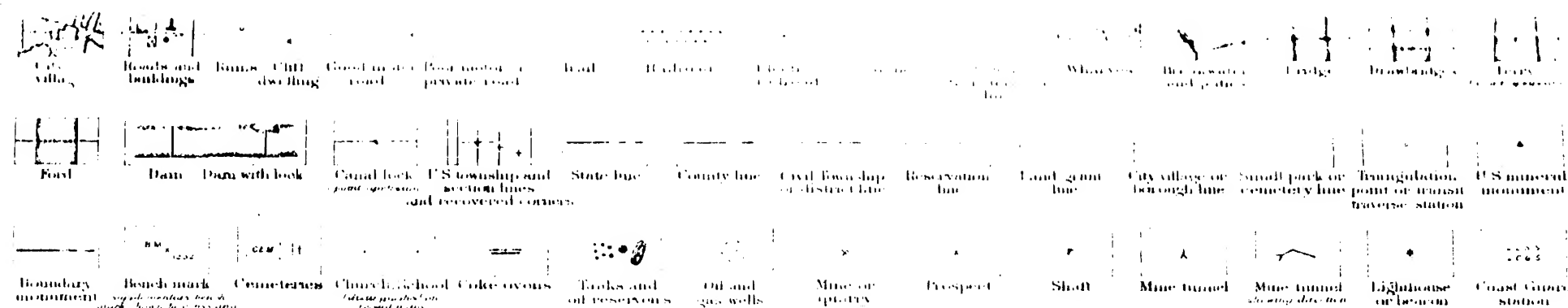
Under maps of each State and of Alaska and the west showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

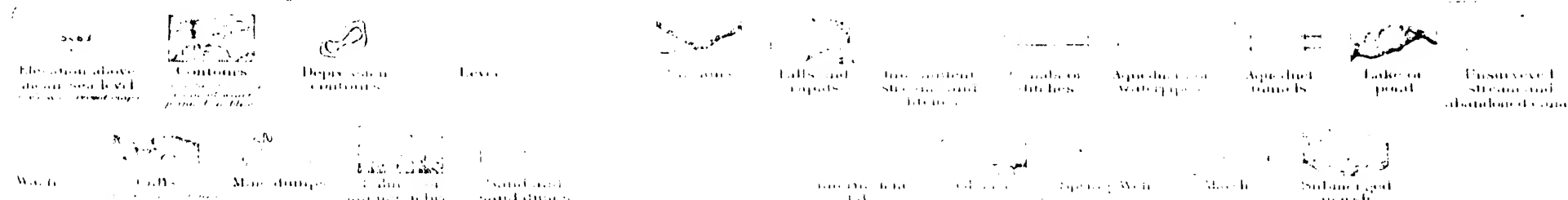
THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

# STANDARD SYMBOLS

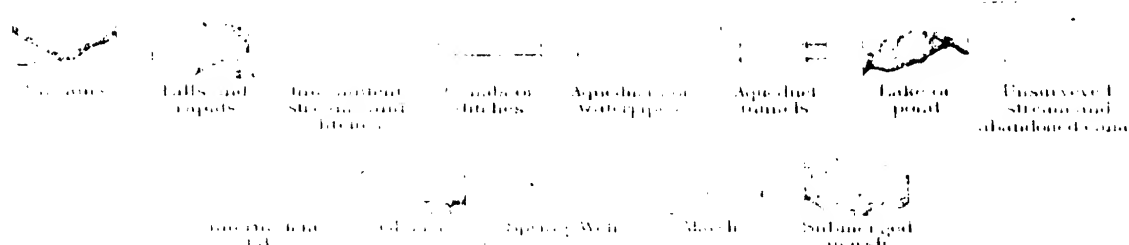
U. S. GEOLOGICAL SURVEY



## RELIEF (printed in brown)



## WATER (printed in blue)

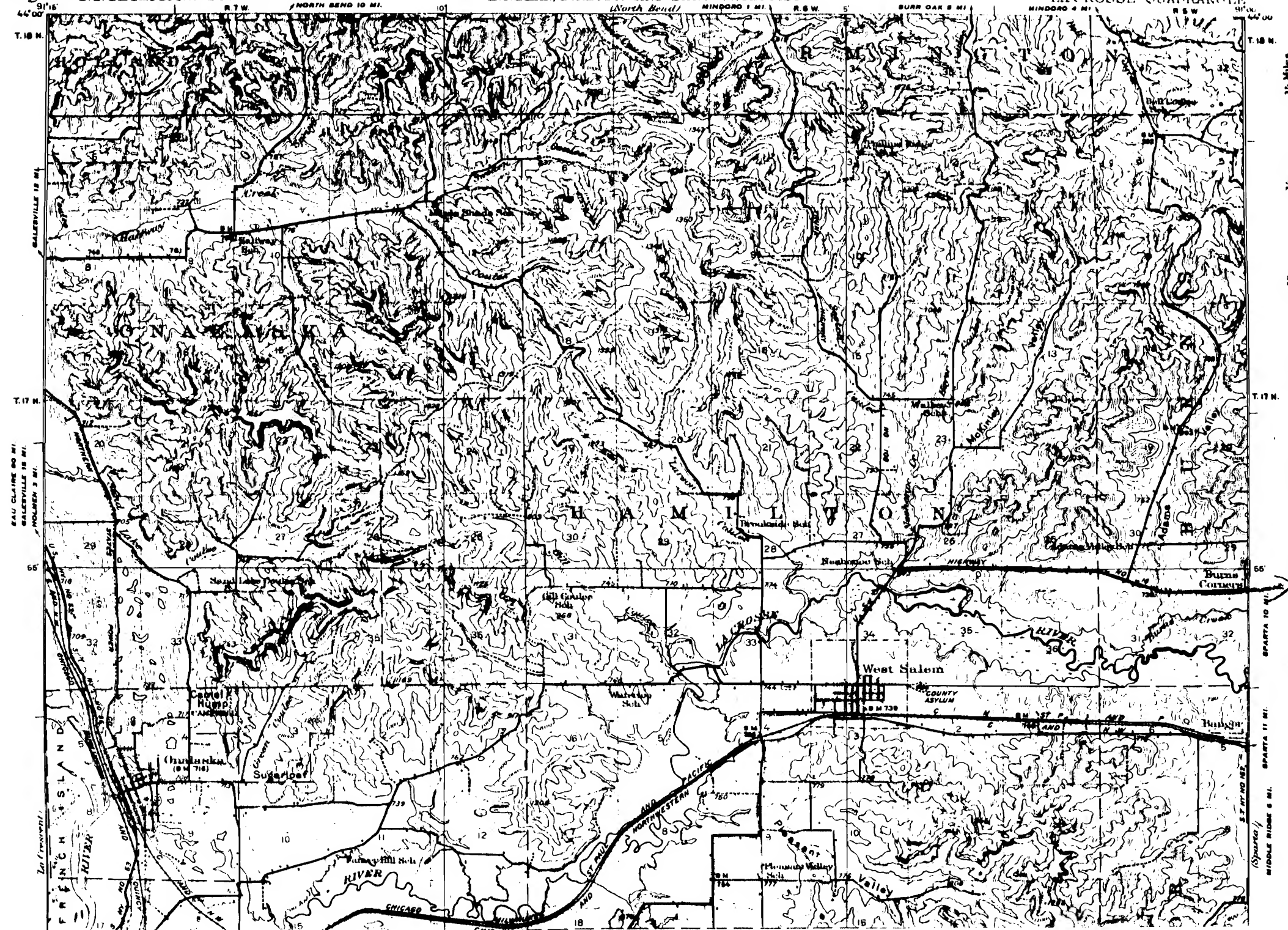


U. S. GEOLOGICAL SURVEY

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

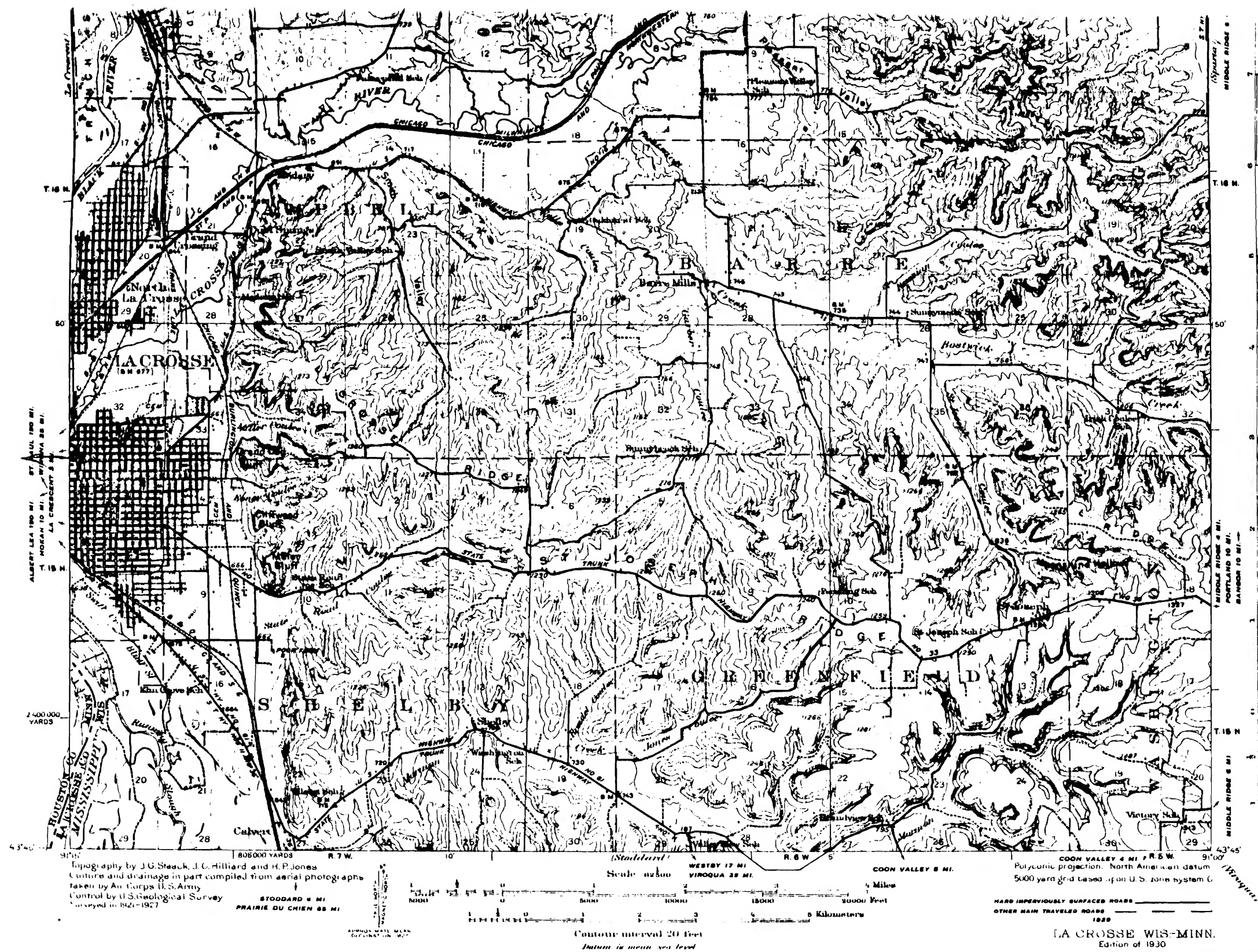
STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
E. F. BEAN, DIRECTOR AND STATE GEOLOGIST

WISCONSIN-MINNESOTA  
LACROSSE QUADRANGLE



Sparta





#20

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and to date contains published maps of more than 42 per cent of the country, excluding of outlying possessions.

This topographic atlas is published in the form of maps on sheet measures about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. The quadrangles are mapped on different scales, the scale chosen for each map being that which is best adapted to serve the needs in the development of the country, and consequently, if the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit of the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are completed and published on special scales for special purposes, the most of topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Survey of areas in which there are problems of great public importance, relating, for example, to mineral development, irrigation, or reclamation of vast tracts, are made with the object in view to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  or half that, with a contour interval of 10 or 25 feet.

2. Survey of areas in which there are problems of less public importance, such as most of the basin of the Mississippi River, are made with the object in view to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = 10 miles) or half that, with a contour interval of 10 or 25 feet.

3. Survey of areas in which the problems are of minor public importance, such as much of the mountain regions of the States of Colorado, New Mexico, and Idaho, are made with the object in view to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = 20 miles) or half that, with a contour interval of 100 feet.

The maps of the United States are published in the following order: (1) the maps of the United States on a scale of  $\frac{1}{62,500}$  or half that, with a contour interval of 10 or 25 feet; (2) the maps of the United States on a scale of  $\frac{1}{125,000}$  (1 inch = 10 miles) or half that, with a contour interval of 10 or 25 feet; (3) the maps of the United States on a scale of  $\frac{1}{250,000}$  (1 inch = 20 miles) or half that, with a contour interval of 100 feet.

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining of blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, representing zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope, and the closer they are together indicate a steep slope, and the closer they are together indicate a very steep slope, such as a cliff or a precipitous cliff.

The names of cities, towns, and villages are in black, and the names of rivers, streams, and lakes are in blue.



ing spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Good motor or public roads are shown by line double lines, poor motor or private roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,000 quadrangles in the United States have been surveyed and maps of them quadrangle to the one on the other side of the sheet have been published.

The topographic map is the base on which the geology and the natural resources of a quadrangle are represented, and the topographic features are bound to the same scale as the geology and the natural resources of the quadrangle. The United States Geological Survey has published more than 2,000 maps of the United States.

The maps of the United States and of Alaska and Hawaii are being published in the following order: (1) the maps of the United States on a scale of  $\frac{1}{62,500}$  or half that, with a contour interval of 10 or 25 feet; (2) the maps of the United States on a scale of  $\frac{1}{125,000}$  (1 inch = 10 miles) or half that, with a contour interval of 10 or 25 feet; (3) the maps of the United States on a scale of  $\frac{1}{250,000}$  (1 inch = 20 miles) or half that, with a contour interval of 100 feet.

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... of maps to make the problems are of minor importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch (nearly 2 miles), with a contour interval of 20 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups: (1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture.



The sketch represents a river valley that is between two hills. In the foreground is the sea with a bay. On the left, a hooked landform is on the left side of the valley. On the right side, there is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and a partly topographic shape.

... of maps to make the problems are of minor importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch (nearly 2 miles), with a contour interval of 20 to 100 feet.

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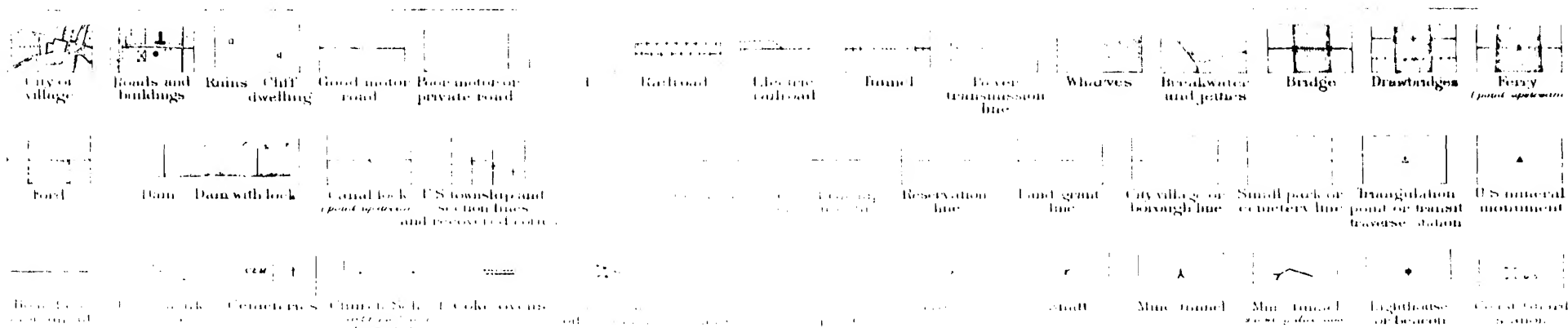
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to:

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

September, 1928.

# STANDARD SYMBOLS

## WATER



## LAND

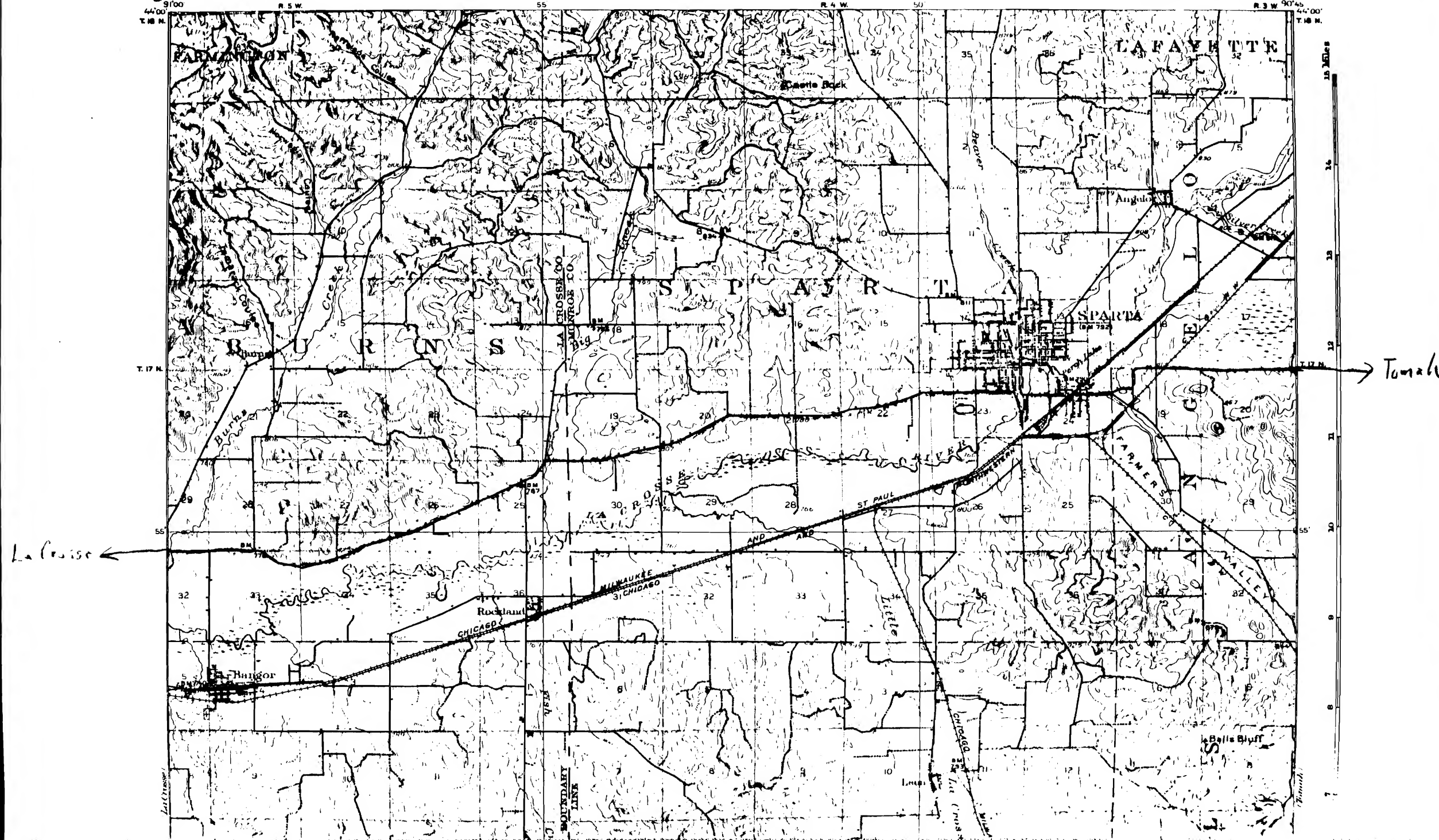


## VEGETATION

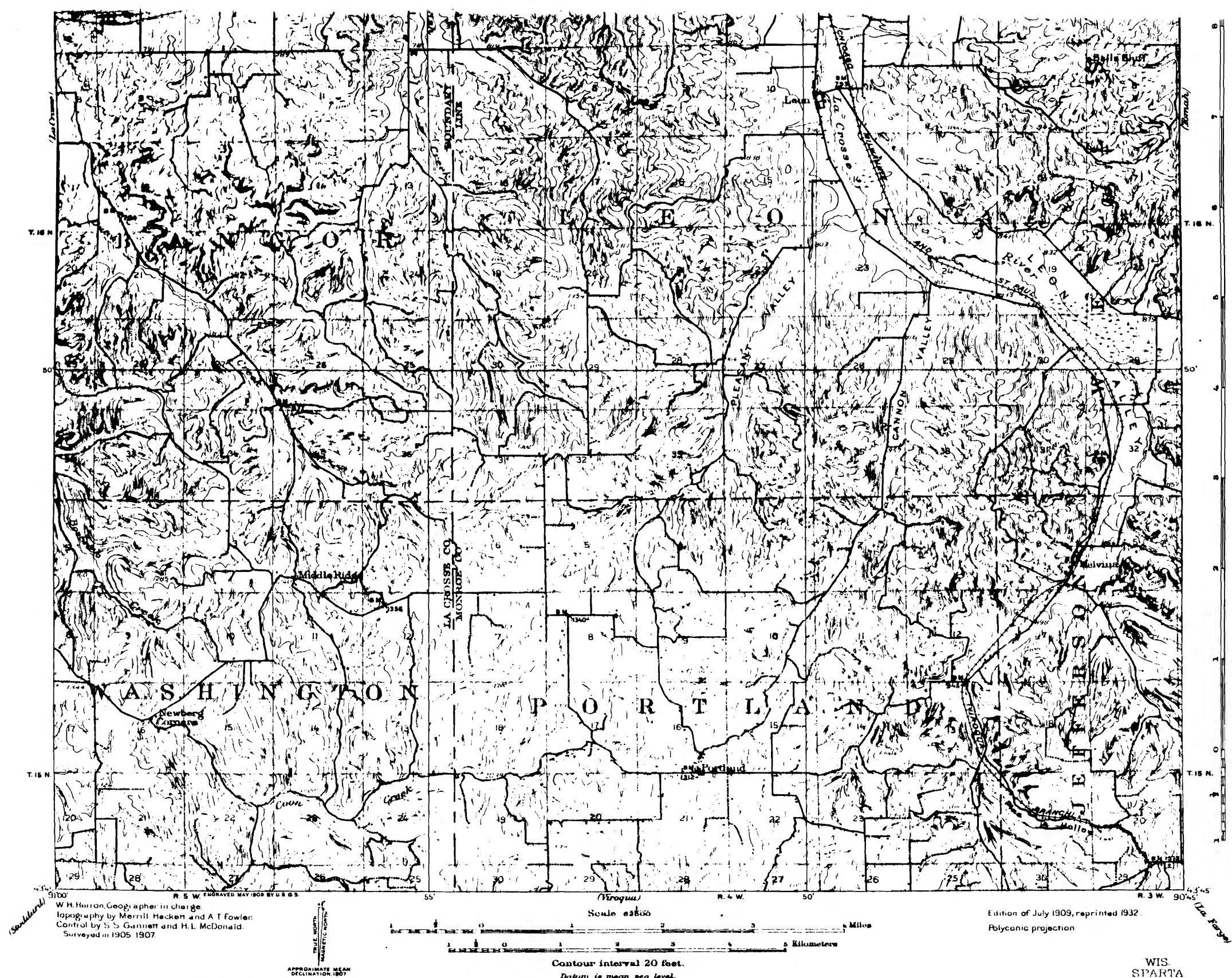


DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

WISCONSIN  
SPARTA QUADRANGLE







W.H. Huron, Geographer in charge  
Topography by Merrill Hacken and A.T. Fowler  
Control by S.S. Gannett and H.L. McDonald  
Surveyed in 1905-1907

APPROXIMATE MEAN  
DECLINATION, 1907

Scale 1:250,000  
Miles  
Kilometers  
Contour interval 20 feet.  
Datum is mean sea level.

Edition of July 1909, reprinted 1932  
Polyconic projection

WIS.  
SPARTA

#19

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a topographic map of the United States and has completed about 40 per cent of the total area. Owing to the large size of such a map it is being published in small units, one of which is shown on the other side of this sheet. Each of these small maps is named from a town or a prominent natural feature, such as a lake, ridge, or mountain, represented on it, and the names of the published maps showing adjoining areas are printed on the margins. As the maps are bounded by lines indicating latitude and longitude they are quadrangular, and the area that each map represents is called a *quadrangle*.

In order to represent a part of the curved surface of the earth on flat maps some distortion is unavoidable, but for small areas, such as those represented by these topographic maps, the errors resulting from the projection used (the polyconic) are so slight that for ordinary purposes the maps are correct as regards direction, distance, and area.

On the lower margin of each sheet are scales, represented by lines, called *bar scales*, on which miles or kilometers and their subdivisions are indicated. The scale is also stated as a fraction that expresses the ratio between a linear distance on the map and a corresponding distance on the ground. For example, the scale of the map on the opposite side of this sheet is  $\frac{1}{62,500}$ ; that is, one unit (foot, inch, or any other measure) on the map is equal to 62,500 units of the same sort on the earth's surface represented by the map. The fraction for 1 mile to 1 inch ( $\frac{1}{62,500}$ ) would be difficult to use, and therefore the scale  $\frac{1}{62,500}$  or a multiple thereof has been adopted. However, for short distances the scale here used may be considered essentially 1 mile to the inch.

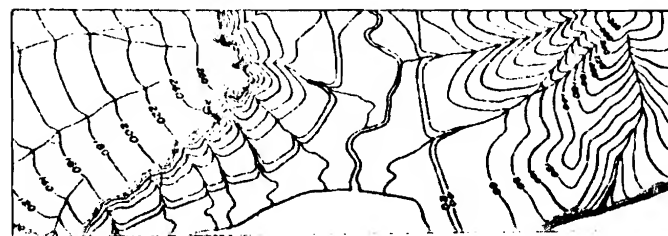
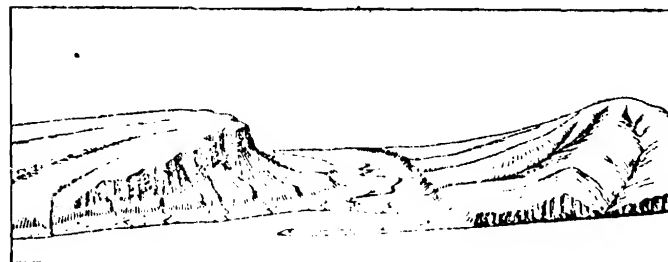
The direction from one point to another may be determined from the map by measuring the angle which a line connecting the two points makes with a line of known direction, such as a parallel or meridian. Directions measured in the area with a compass would not necessarily agree with those shown by the map because in different parts of the country the compass needle does not point to the true north. The difference between true north and magnetic north is called the *magnetic declination*. On Geological Survey maps a small diagram in the lower margin shows graphically the amount of magnetic declination and states it in figures. For ordinary purposes the declination may be considered constant. In order to determine with an ordinary compass the true directions of objects in the field the amount of the declination shown on the map should be applied to each compass reading; therefore, if the declination is west, as it is in New York State, it should be subtracted

such as roads, towns, boundaries. Some more recent maps, by a green overprint, show also wooded areas.

The relief is printed in brown. On practically all Survey maps the surface or *datum* from which elevations are calculated is mean sea level. The exact altitudes of many prominent points are shown on the map by figures, but in order to show the elevation of every part of the area the relief is indicated by *contour lines*, which are so drawn that each one represents a line passing through all points on the ground that have the same elevation above the datum. In other words, if a person followed on the ground the course indicated by a single contour line on the map he would always be at the same elevation above sea level. The contour lines are drawn to show certain specific altitudes, and the vertical distance in nature between the successive contours selected for representation on the map is called the *contour interval*. The contour interval used for the map on the other side of this sheet is 20 feet, but other intervals range from 5 feet in regions of little relief to 250 feet in rugged, mountainous country.

In order that the contour lines may be readily followed with the eye certain of them are drawn especially heavy. On the accompanying map every fifth contour line is thus accented, but on others, in order to make the accented line fall on the even hundred or thousand feet, every fourth line is emphasized.

The manner in which contour lines express altitude, form, and grade is shown in the sketch and map below, in which each feature shown by the sketch is represented by contours on the map.



The drainage, including all the water features, is printed in blue. Most of the common symbols and conventions used are shown below. All streams which are so narrow that their true width can not be shown to scale by double lines with or without intervening water lining are represented by a single moderately heavy line. Many of the very small streams, however, are not indicated, and therefore small supplies of water may be found at other places than those at which drainage lines are shown. The gradient of any stream may be accurately determined from the map by measuring the distance between successive contours represented as crossing the stream.

The culture—the work of man—is shown in black, and its features are represented by symbols or conventional signs, many of which are given below. The principal cultural features are the settlements, roads, and boundaries. The settlements shown include not only the individual houses in sparsely settled districts and the built-up portions of villages, towns, and cities, but also certain special kinds of buildings, such as school houses, churches, mines, and post offices. Among the routes of travel represented are railroads, street-car lines, and ordinary roads. Many kinds of ordinary roads are distinguished, such as metaled roads, wagon roads, poor or private roads, and trails or paths. The relation of the culture to the drainage or relief is also shown, for special symbols indicate whether the roads cross streams by bridges, by fords, or by ferries.

The topographic maps published by the Geological Survey, although prepared primarily as the bases on which to represent the geology of the country, are obviously of value, so far as the scale permits, for military or other uses. They fulfill the prime requirement of a good military map because they show correctly the kind, size, shape, distance, and height of all the larger natural and artificial objects. Some special details must of course be added, and the cultural features must be constantly brought up to date to make them complete military maps, but this information is relatively small in amount and can be obtained rapidly and at slight expense. Even without this complete information the user of the maps will be surprised, as he acquires proficiency in reading them, to note how much that is not actually expressed may be correctly inferred from them by critical and intensive study. To gain this proficiency in interpreting maps the user should avail himself of every opportunity to study the various natural objects in the field and to compare them with their representation on the map.

Over 2,400 quadrangles have been surveyed, and maps of them similar to the one on the front of this sheet have been

between true north and magnetic north is called the magnetic declination. On Geological Survey maps a small diagram in the lower margin shows graphically the amount of magnetic declination and states it in figures. For ordinary purposes the declination may be considered constant. In order to determine with an ordinary compass the true directions of objects in the field the amount of the declination shown on the map should be applied to each compass reading; therefore, if the declination is west, as it is in New York State, it should be subtracted from compass readings in the northeast or southwest quadrants and added to readings in the northwest or southeast quadrants; if the declination is east it should be added to northeast or southwest readings and subtracted from northwest or southeast readings.

The features shown on the topographic atlas sheets are of three kinds—(1) *relief*, or the form of the surface, such as plains, mountains, valleys; (2) *drainage*, or the water features, such as oceans, rivers, lakes; (3) *culture*, or the work of man.



The amount of relief along roads, streams, slopes, etc., may be readily visualized from the map by drawing cross sections or profiles on which the vertical element is the height shown by the contours and the horizontal element is the distance between the contours.

complete information the use of the maps will be complete, as the creative proficiency in reading them, to note how much that is not actually expressed may be correctly inferred from them by critical and intensive study. To gain this proficiency in interpreting maps the user should avail himself of every opportunity to study the various natural objects in the field and to compare them with their representation on the map.

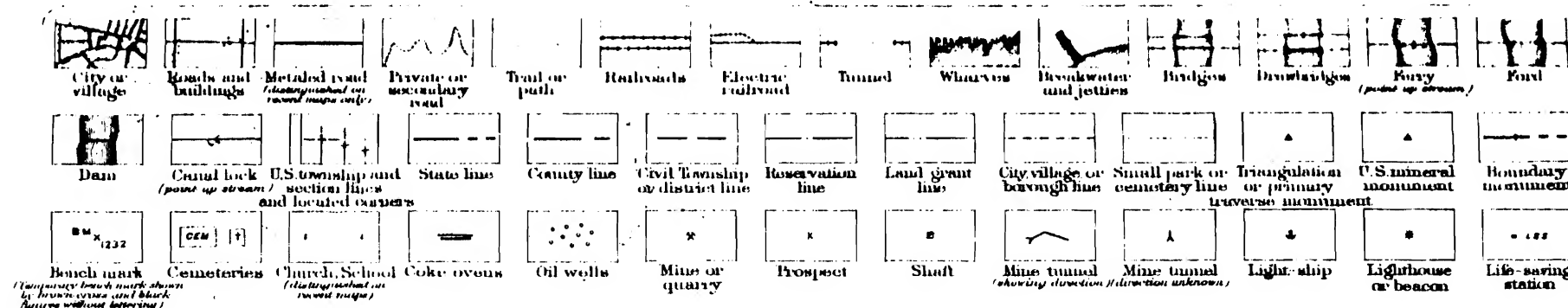
Over 2,400 quadrangles have been surveyed, and maps of them similar to the one on the front of this sheet have been printed. Index maps of each State showing the areas covered by the published topographic maps can be obtained free of charge, and copies of the topographic maps can be bought for 10 cents each or, if ordered in lots of 50 or more, for 6 cents each, by addressing

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

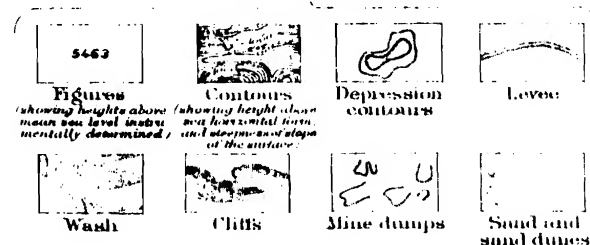
June, 1916.

## CONVENTIONAL SIGNS

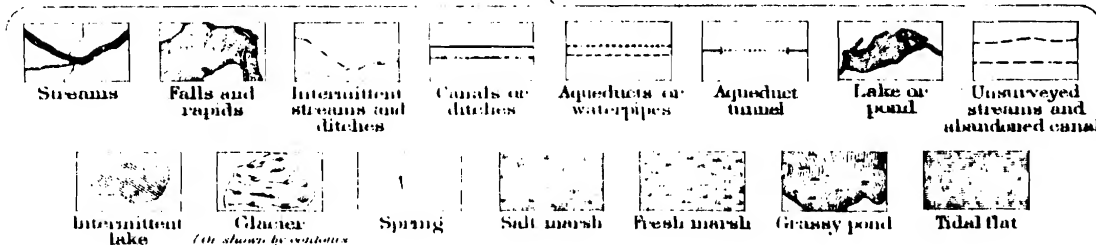
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



### WOODS (when shown, printed in green)

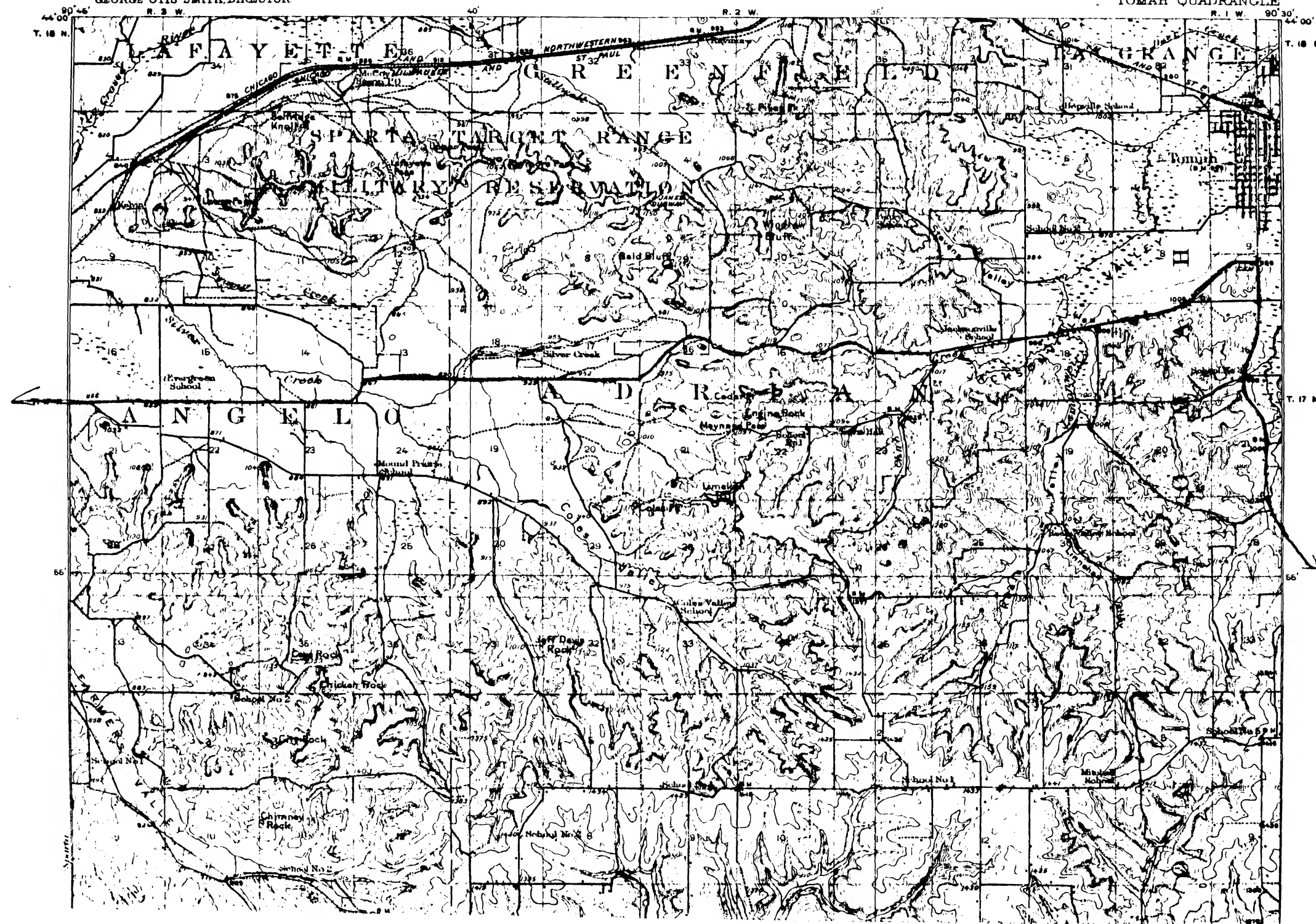


DEPARTMENT OF THE INTERIOR  
FRANKLIN K. LANE, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

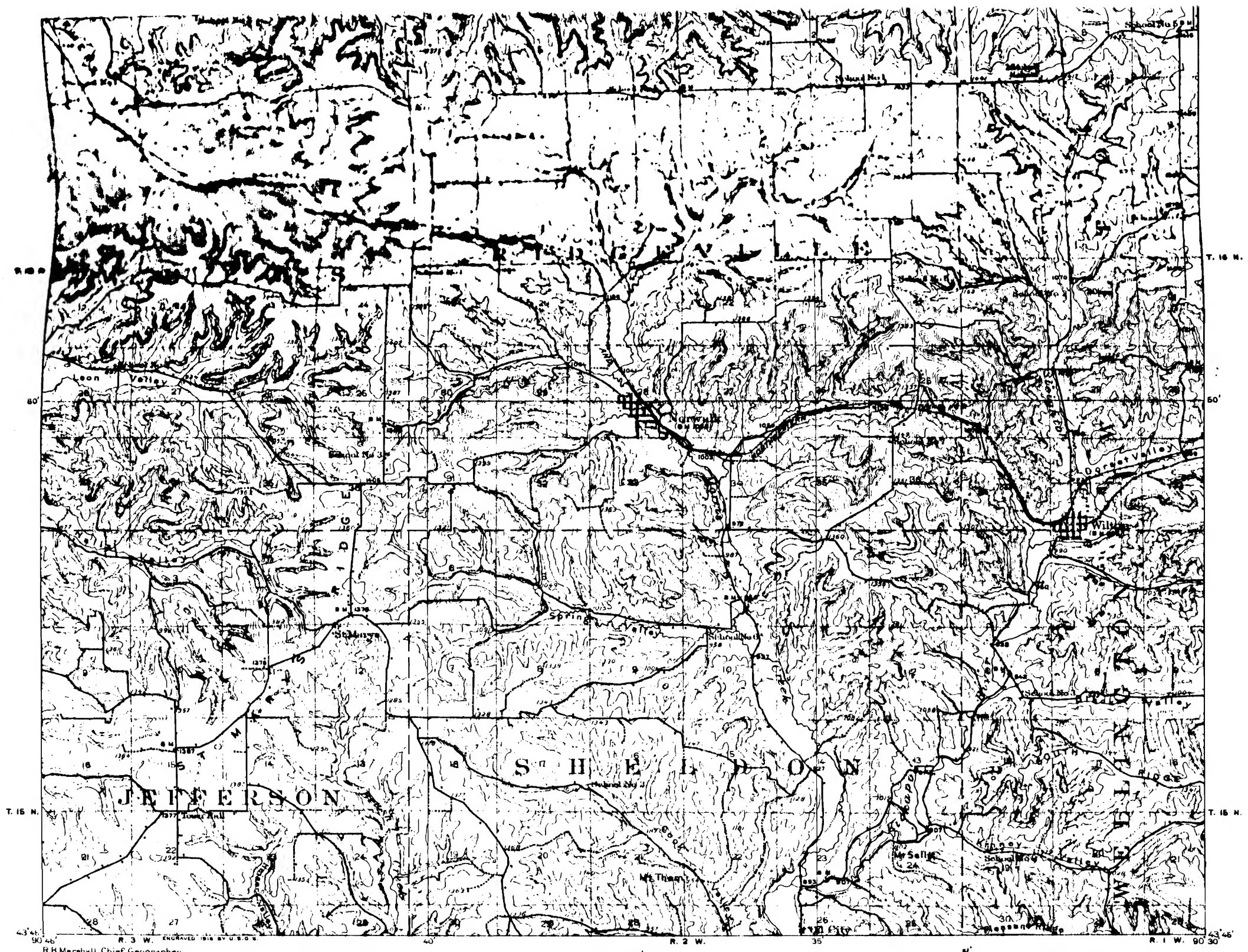
# TOPOGRAPHY

WISCONSIN  
(MONROE COUNTY)  
TOMAH QUADRANGLE

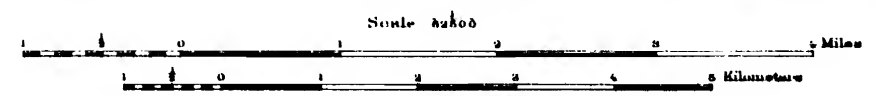
Sparta







R.B. Marshall, Chief Geographer.  
W.H. Henson, Geographer in charge.  
Topography by R.T. Evans, O.H. Nelson,  
Orl Watson, and J.M. Perkins.  
Control by A.D. Duck, L.F. Biggs, and J.M. Perkins.  
Surveyed in 1914.



Edition of 1916

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps or atlas sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for any quadrangle depending on its nature and its probable future development, and consequently though the standard atlas sheets are of nearly uniform size they represent areas of different sizes. On the lower margin of each sheet are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a representative fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

The standard scales used on these maps are multiples of the fraction  $\frac{1}{62,500}$ . Quadrangles in thickly settled or industrially important regions are mapped on a scale of  $\frac{1}{25,000}$ , or about 1 mile to an inch, and cover areas measuring 15' in latitude and longitude. Quadrangles in less thickly settled or industrially less important districts are mapped on a scale of  $\frac{1}{50,000}$ , or about 2 miles to an inch, and cover areas measuring 30' in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of  $\frac{1}{100,000}$ , or about 4 miles to an inch, covering areas measuring 1° in latitude and longitude. Maps for special purposes are made on scales larger than  $\frac{1}{62,500}$ .

A topographic survey of Alaska has been in progress since 1898, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{100,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 3,500 square miles has been mapped on a scale of  $\frac{1}{62,500}$ .

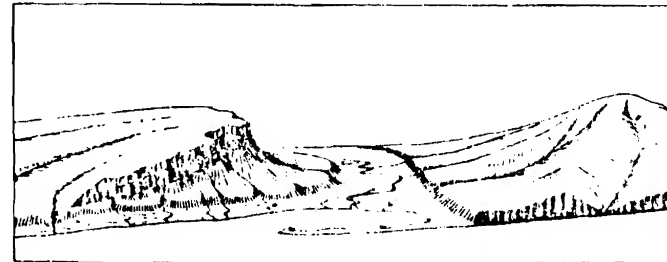
A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three classes. All water, including oceans, rivers, canals, swamps,

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in mapping only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour, for example, would be the shore line if the sea should rise 20 feet. Contour lines show the shapes of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

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The sketch represents a river valley that lies between two

gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins that are issued free by the Geological Survey.

The lettering and works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metalled roads are shown by double lines, one of which is accentuated. Other public roads are shown by fine double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of the principal city, town, or natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,800 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States.

Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the

made on scales larger than 1:62,500.

A topographic survey of Alaska has been in progress since 1899, and nearly 55 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of 1:125,000 or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of 1:62,500, but about 3,500 square miles has been mapped on a scale of 1:250,000.

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of 1:62,500.

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes

downward. The sketch is a quadrangle, not a rectangle, and the edges showing these features are bound together with a double line to form a frame of the (quadrangle) sheet of the United States.

Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

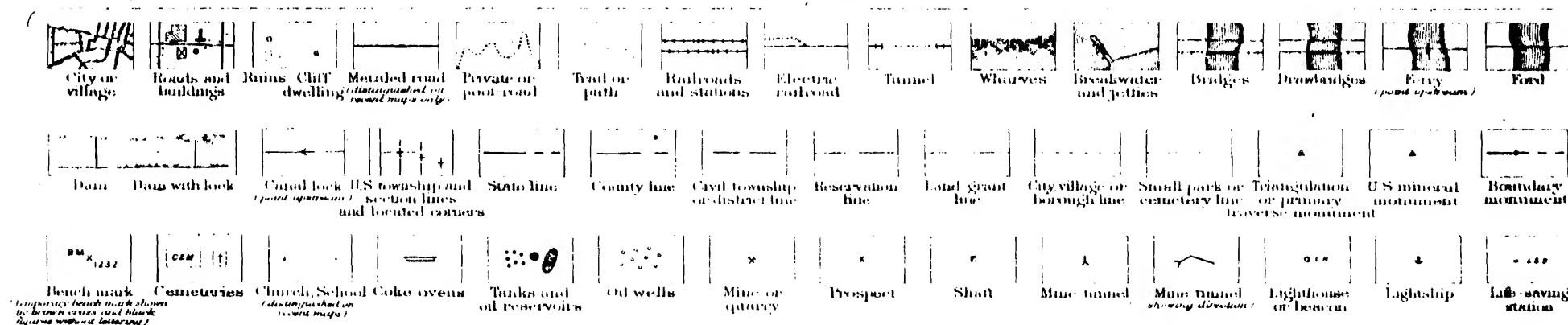
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

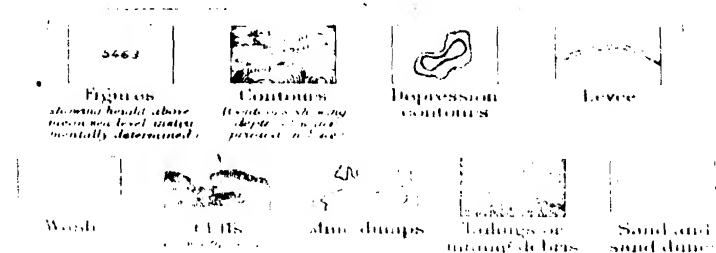
November, 1919.

## CONVENTIONAL SIGNS

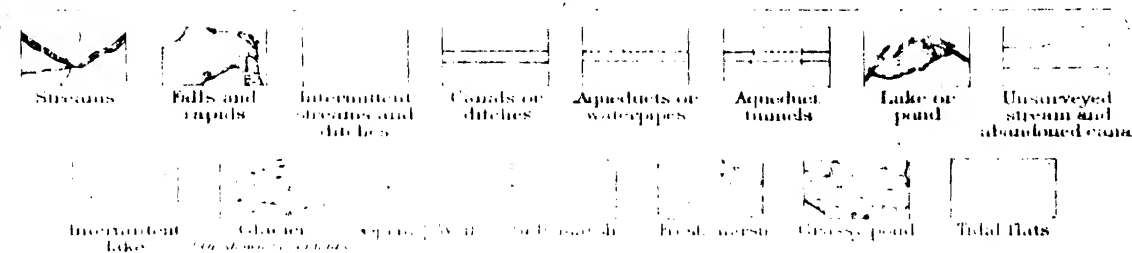
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



### WOODS (when shown, printed in green)

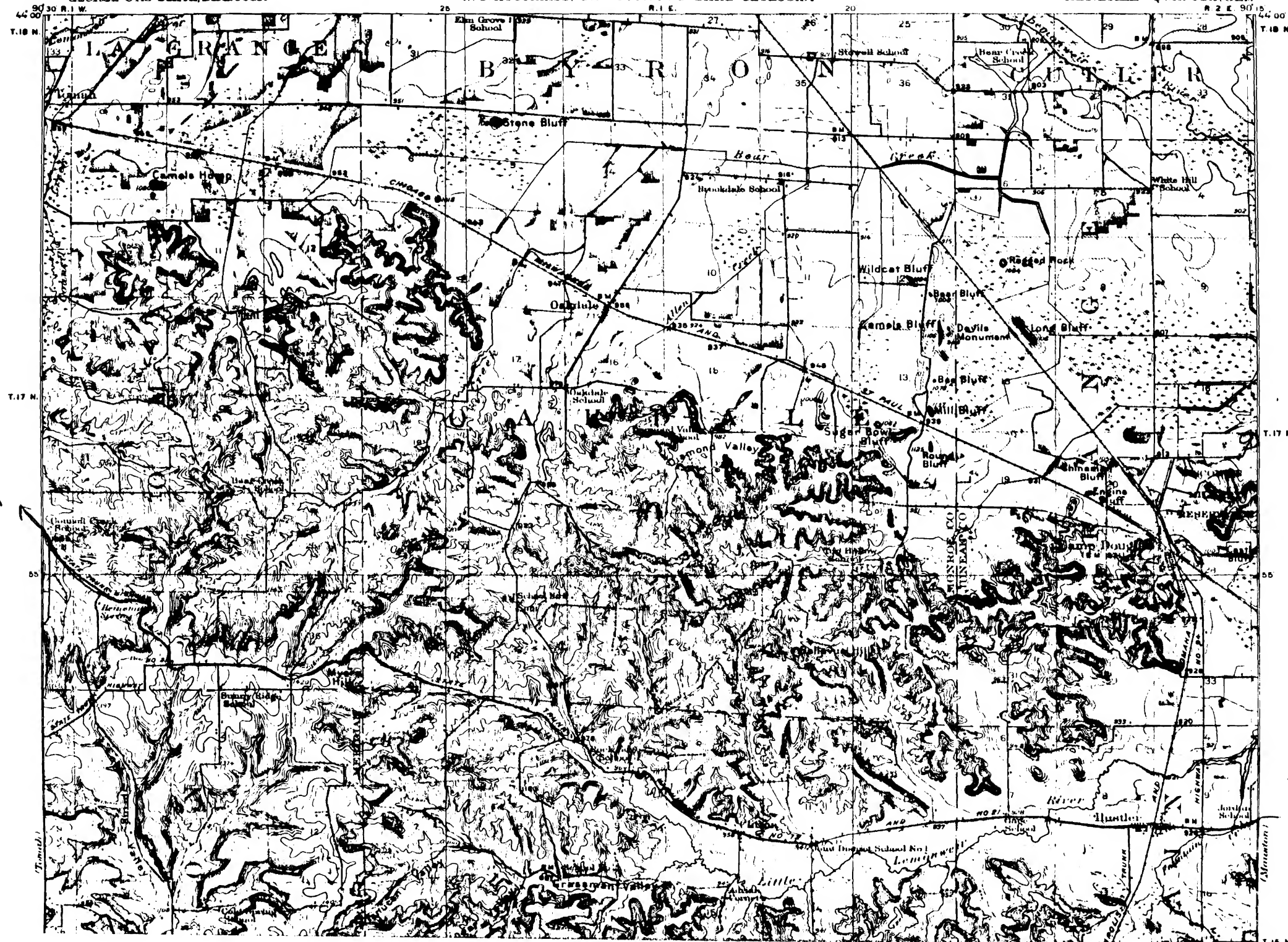
(when shown, printed in green)

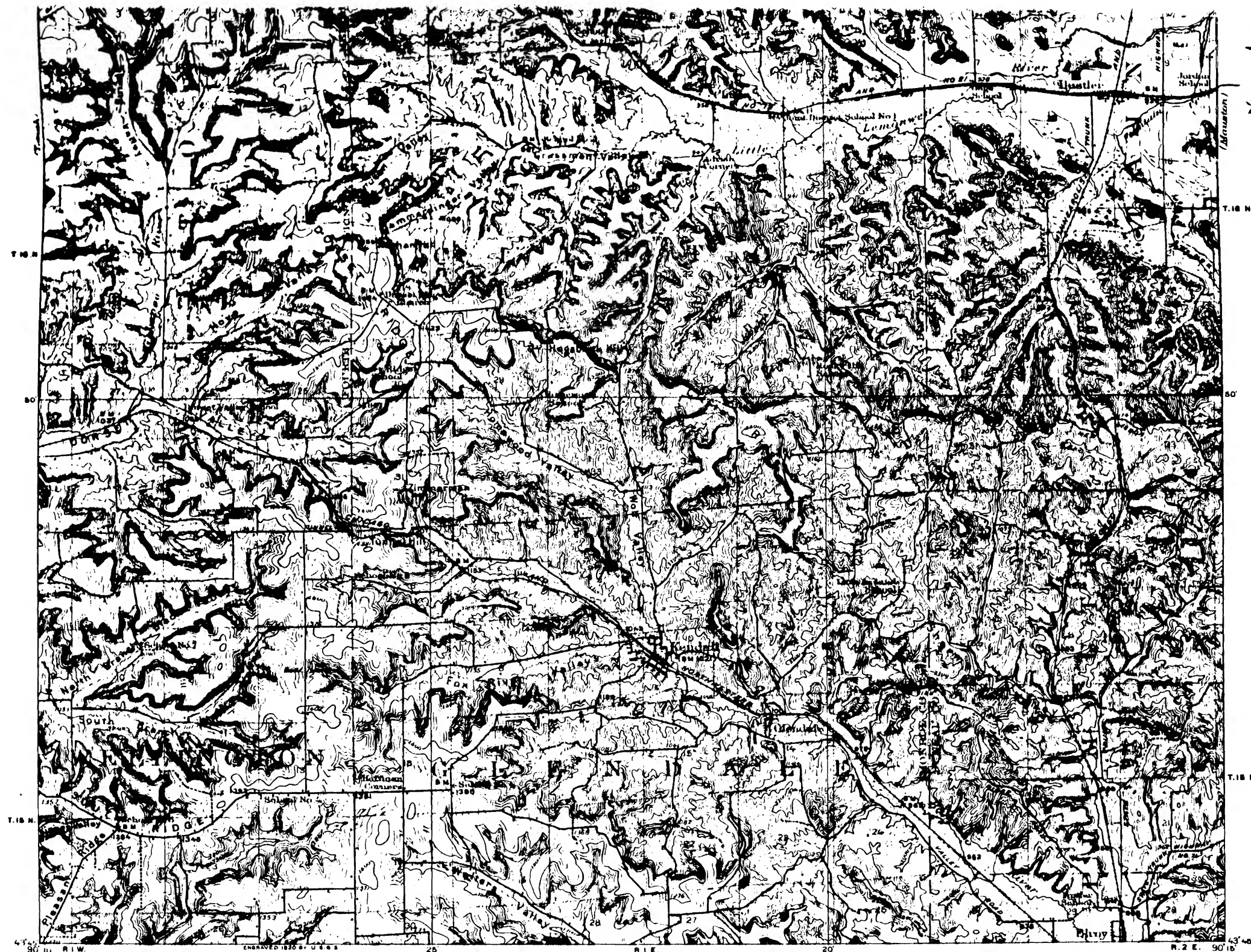


DEPARTMENT OF THE INTERIOR  
ALBERT B. FALL, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY  
STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN  
KENDALL QUADRANGLE

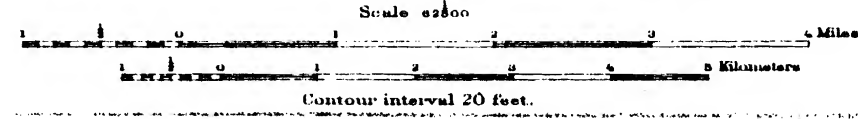




Manslow

C. H. Birdseye, Chief Topographic Engineer  
 W. H. Herron, Geographer in charge  
 Topography by C. E. Cooke, O. H. Nelson,  
 C. W. Rowell, and L. B. Hill.  
 Control by H. S. Senseney, D. S. Birken, Geo. T. Hawkins,  
 J. R. Archer, and R. G. Clinite.  
 Surveyed by P. H. R.

Hill  
 Cooke  
 Nelson  
 Rowell



Polyconic projection, North American datum.

Woods  
 Break

#17



## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps or atlas sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for any quadrangle depending on its nature and its probable future development, and consequently though the standard atlas sheets are of nearly uniform size they represent areas of different sizes. On the lower margin of each sheet are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a representative fraction expressing a fixed ratio between linear measurement on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

The standard scales used on these maps are multiples of the fraction  $\frac{1}{62,500}$ . Quadrangles in thickly settled or industrially important regions are mapped on a scale of  $\frac{1}{62,500}$  or about 1 inch to an inch, and cover areas measuring 15' in latitude and 1 degree in longitude. Quadrangles in less thickly settled or industrially important districts are mapped on a scale of  $\frac{1}{125,000}$  or about 2 miles to an inch, and cover areas measuring 30' in latitude and 2 degrees in longitude. Reconnaissance maps of sparsely inhabited regions have been made on a scale of  $\frac{1}{250,000}$  or about 4 miles to an inch, covering areas measuring 1° in latitude and 4 degrees in longitude. Maps for special purposes are made on scales larger than  $\frac{1}{62,500}$ .

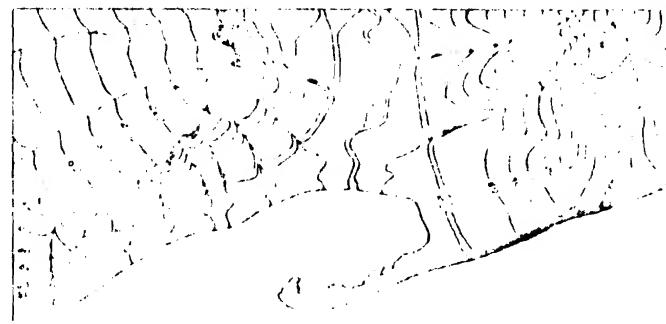
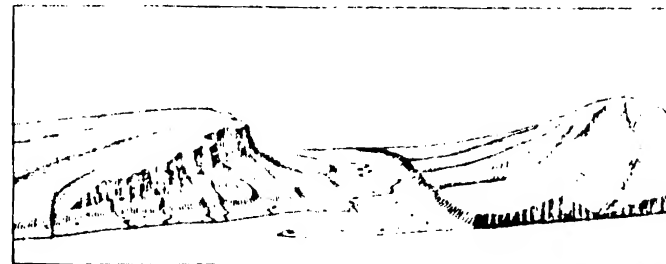
A topographic survey of Alaska has been in progress since 1898, and nearly 75 per cent of its area has now been mapped. About 40 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$  or about 4 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$ , but about 3,500 square miles have been mapped on a scale of  $\frac{1}{62,500}$ .

A large part of the Hawaiian Islands has been surveyed,

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in mapping only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour, for example, would be the shore line if the sea should rise 20 feet. Contour lines show the shapes of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins that are issued free by the Geological Survey.

The lettering and works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metalled roads are shown by double lines, one of which is accentuated. Other public roads are shown by line double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of the principal city, town, or natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,800 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a volume of the Geologic Atlas of the United States.

Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price

A topographic survey of Alaska has been in progress since 1897, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$ , but about 3,500 square miles has been mapped on a scale of  $\frac{1}{250,000}$ .

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Various signs are given for water, relief, and culture, and a list of the signs is given at the end of each group.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping sides separated by ridges. The signs are indicated at the base of the sketch. The hill on the left is a steep slope, and the hill on the right is a rounded summit.

For more information of the Geologic Atlas of the United States.

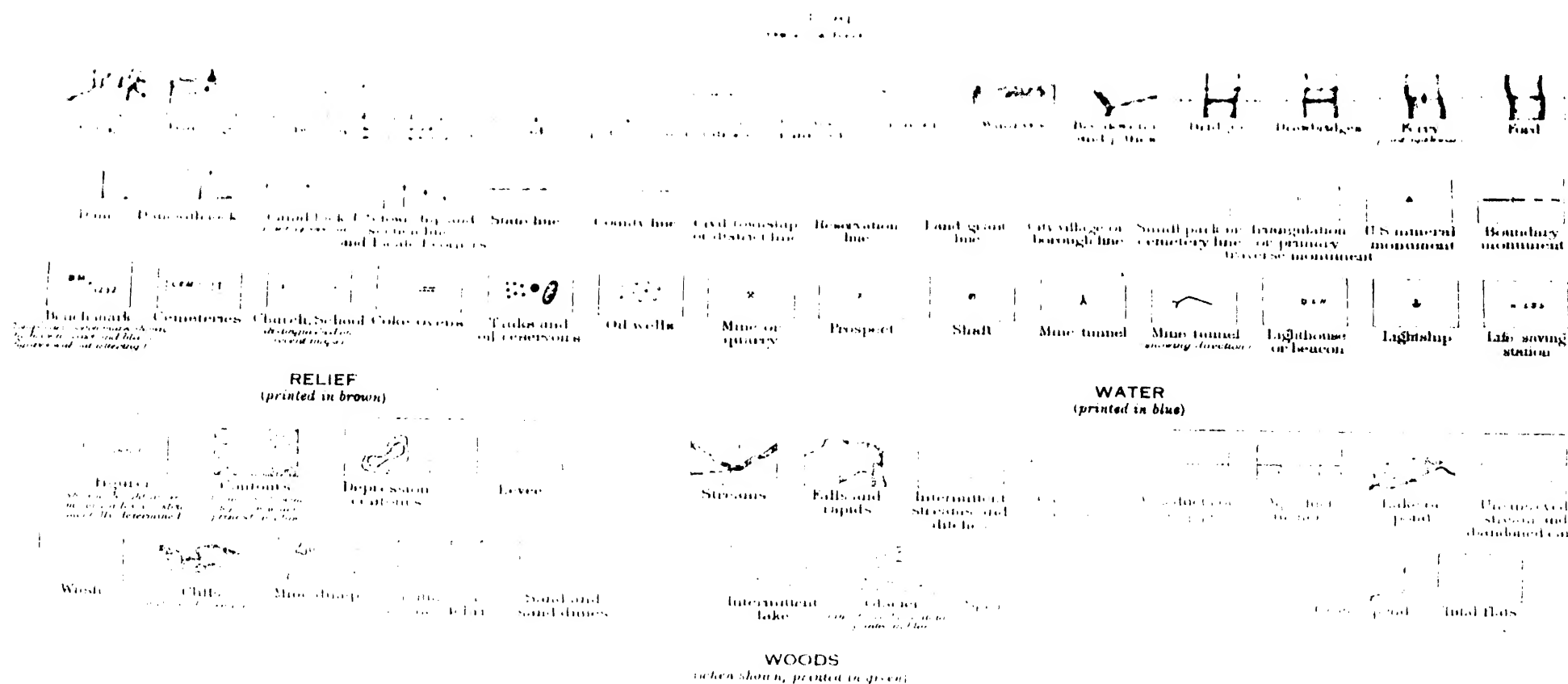
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

November, 1919

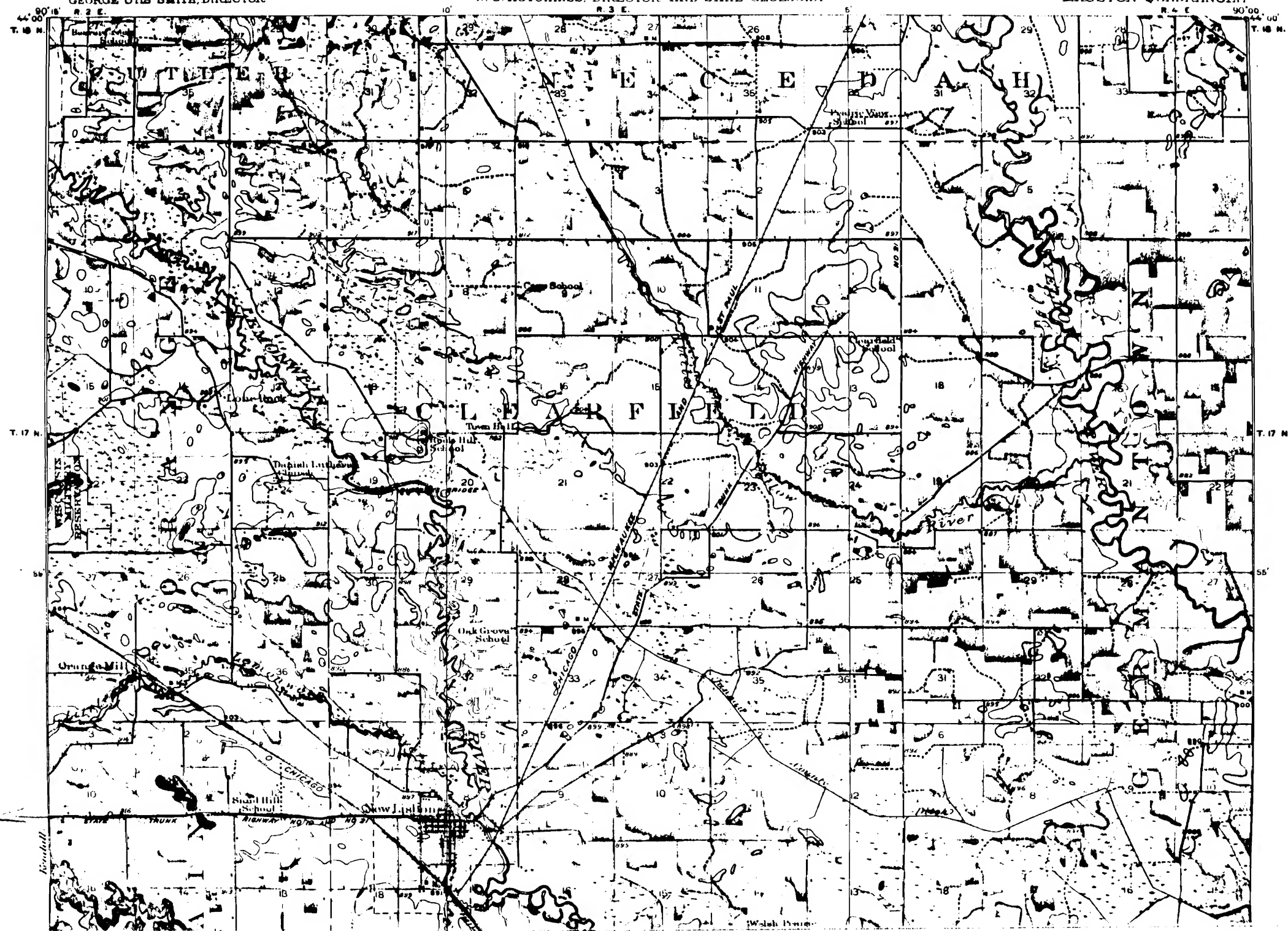
# CONVENTIONAL SIGNS



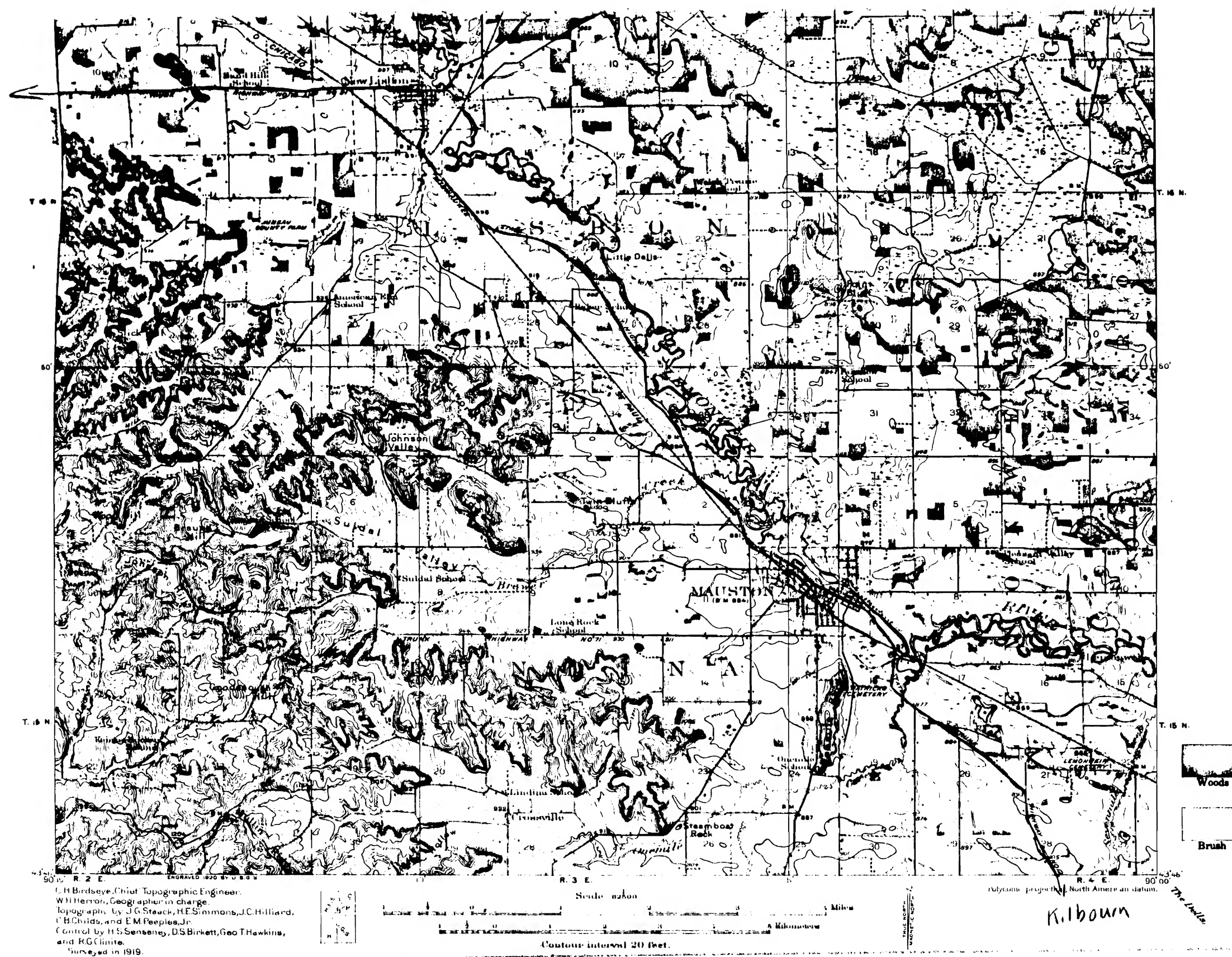
DEPARTMENT OF THE INTERIOR  
JOHN BARTON PAYNE, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY  
STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN  
(JUNEAU COUNTY)  
MAUSTON QUADRANGLE







411

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 42 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard map has of nearly uniform size, they represent areas considerably different. On the lower margin of each map are printed the following showing distance in feet, meters, and miles. In the lower right-hand corner of the map is shown by a fraction expressing the scale of the map, the given linear measurement on the map and corresponding distance on the ground. For example, the scale 1 inch = 1 mile is written on the map (such as 1 inch, 1 foot, or 1 meter) as 1:62,500, similar units on the earth's surface.

As the surveys are surveyed and some maps are completed and published on special scales for special purposes, the topographic maps for the United States proper and the insular group have for many years been divided into three general classes, as follows:

1. The maps of areas in which there are problems of great importance, such as, for example, general development of a region, or the construction of a large dam, were made with great accuracy and are published on the publication of maps on a standard scale, with a contour interval of 20 feet.

2. The maps of areas in which there are problems of average importance, such as, for example, the construction of a small dam, were made with moderate accuracy and are published on the publication of maps on a standard scale, with a contour interval of 40 feet.

3. The maps of areas in which there are problems of average importance, such as, for example, the construction of a small dam, were made with moderate accuracy and are published on the publication of maps on a standard scale, with a contour interval of 40 feet.

The topographic maps of the United States are published by the United States Geological Survey, and are sold at different prices. A list of the prices of the maps is given on the order for maps.

(works of man), such as towns, cities, roads, railways, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some of the maps.

All the water features are represented in blue, the rivers, streams, and canals by single blue lines and the lakes, seas, and the sea by blue water lining in blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground on which every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the sea coast itself is a contour, the datum or zero of altitude being mean sea level. The 100-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope, while lines close together indicate a steep slope, and the contour lines are often broken to fill.

The manner in which a map is made is as follows: The contour lines are drawn on a sheet of paper, and the map is then printed on a sheet of paper.



the spurs separated by ravines. The spurs are truncated at their lower ends by a scarp. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually down and forms an inclined tableland that is traversed by a few small ravines. On the map each of these features is represented by a line, the line representing the position in the country of the contour line.

The contour interval, or the vertical distance in feet between two adjacent contours, is indicated at the bottom of each map. The contour interval, according to the topography of the area mapped, in the country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Good motor or public roads are shown by fine double lines, poor motor or private roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles, of which maps have been published. Over 2,500 quadrangles in the United States have been surveyed and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the names of the geologists and mineral resources are given with a description of the mineral resources of the quadrangle. The United States Geological Survey publishes the topographic maps.

The topographic maps of the United States are published by the United States Geological Survey, and are sold at different prices. A list of the prices of the maps is given on the order for maps.

1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, coasts, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping

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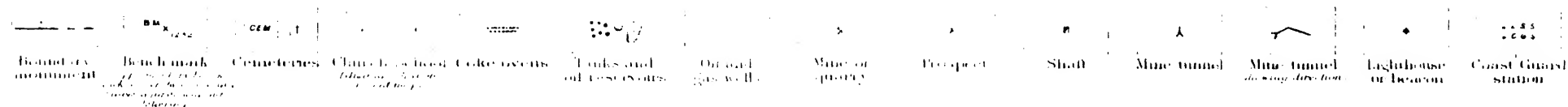
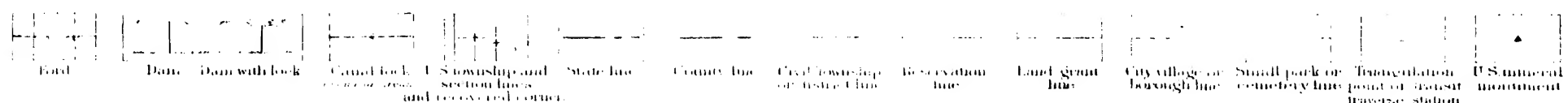
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

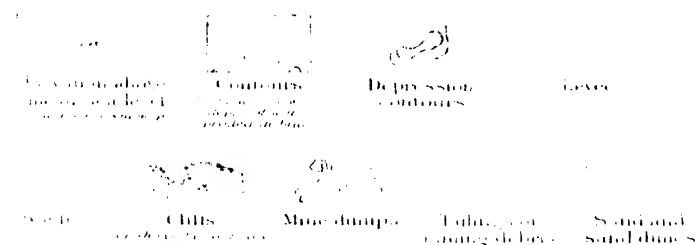
September, 1928.

## STANDARD SYMBOLS

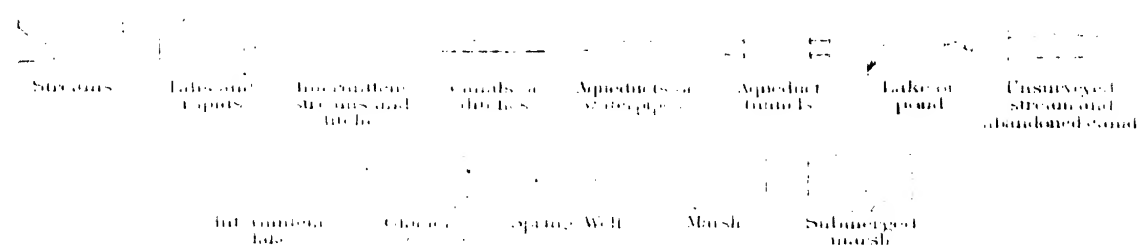
### CULTURE (printed in black)



### RELIEF (printed in brown)



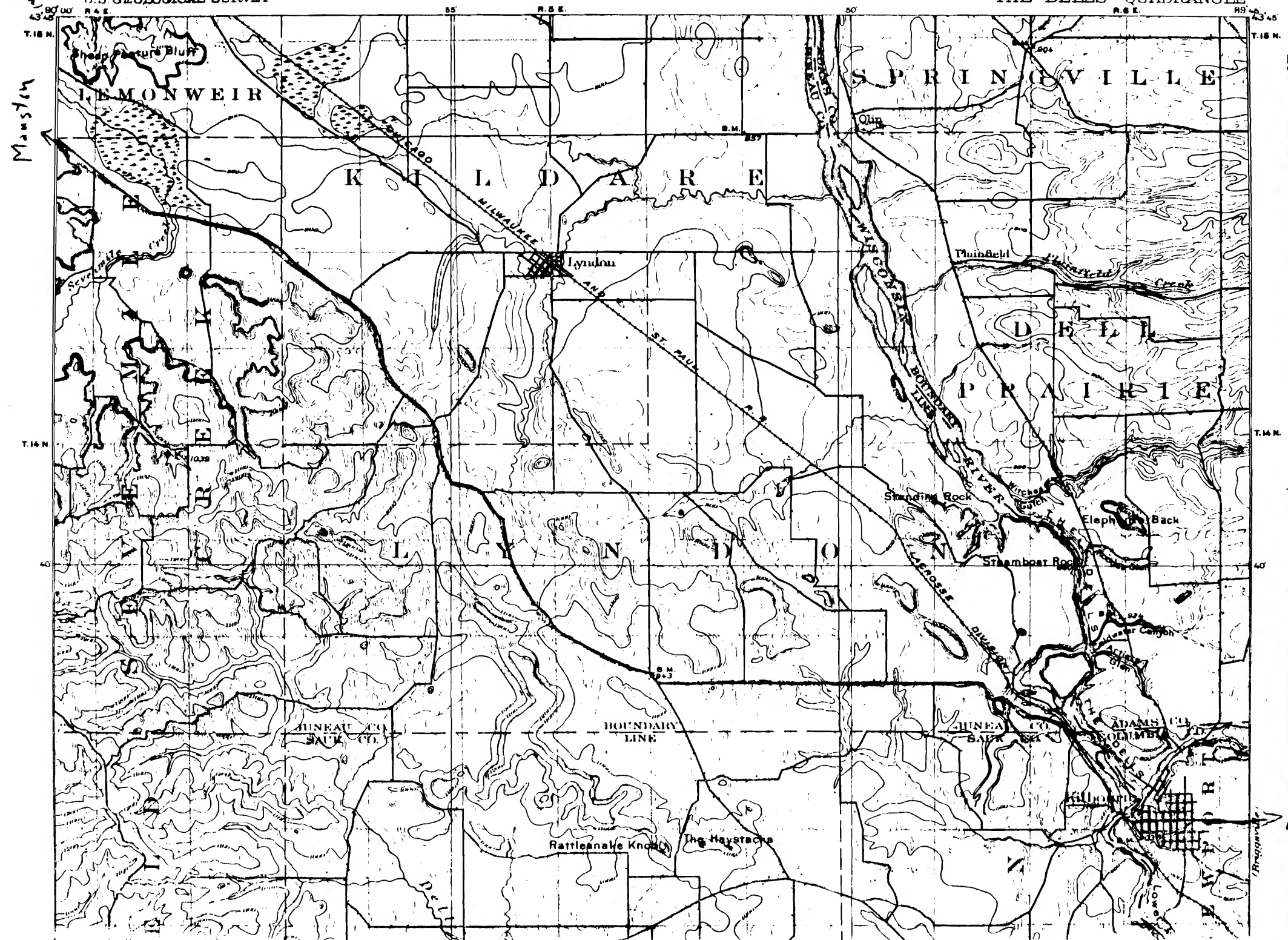
### WATER (printed in blue)



### WOODS (when shown, printed in green)

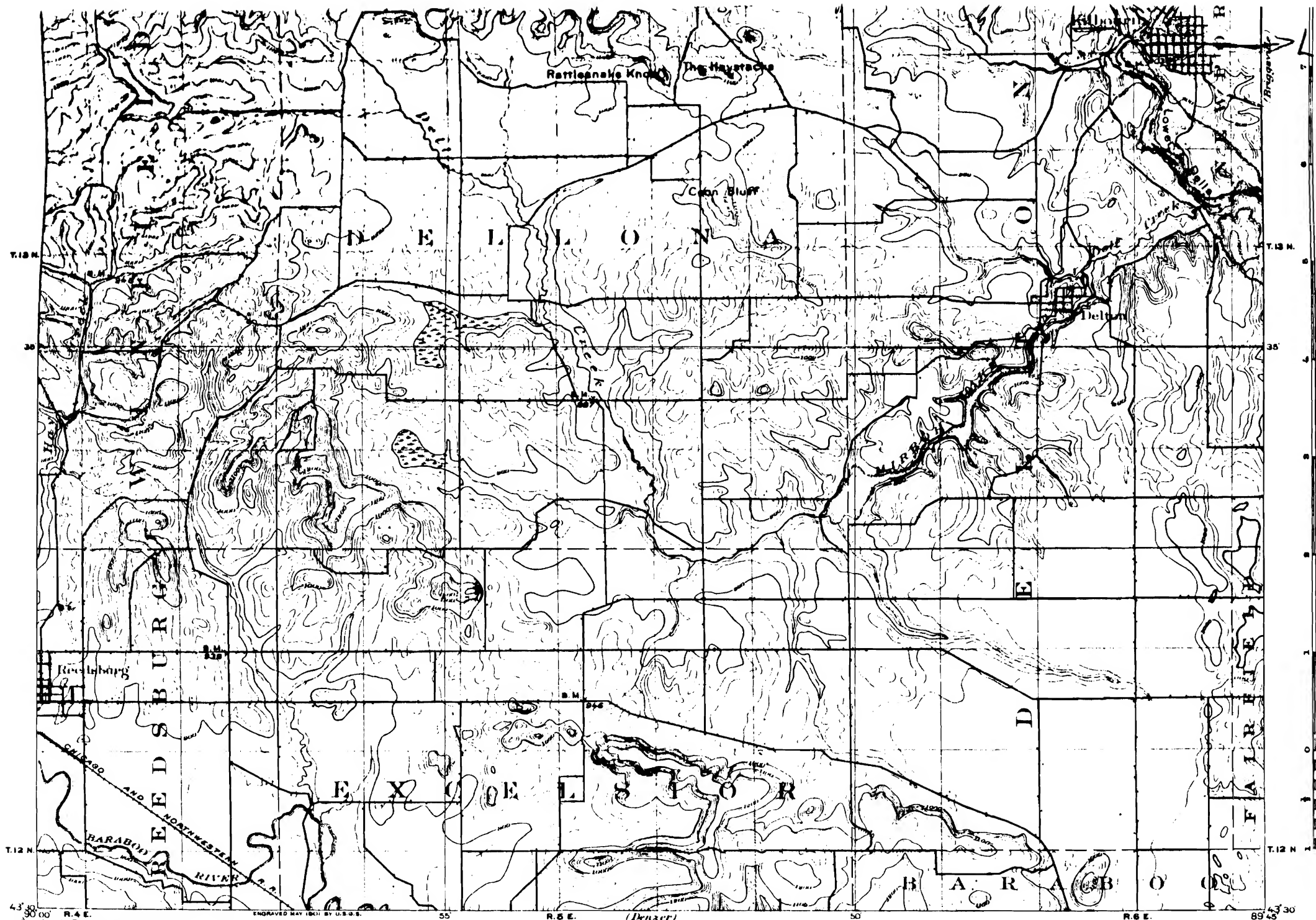
DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

WISCONSIN  
THE DELLS QUADRANGLE



Lewiston





Lewiston

43  
J.H. Renshaw, Geographer in charge.  
Control by Geo. I. Hawkins.  
Topography by Wm. H. Griffin.  
Surveyed in 1893.

Scale 62,500  
Miles  
Kilometers  
Contour interval 20 feet  
Datum is mean sea level.  
(Readjustment indicates that elevations on this map should be increased 4 feet.)

43  
Edition of Sept 1901, reprinted 1930  
Polyconic projection North American datum

THE DELLS, WIS.

#15

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 42 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurement on the map and corresponding distance on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the remaining maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance, relating, for example, to national development, irrigation, or reclamation of swamp areas, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = one-half mile), with a contour interval of 10 or 19 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 20 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by recon-

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Inter-mittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



ing spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Good motor or public roads are shown by fine double lines, poor motor or private roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,300 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

Index maps of each State and of Alaska and Hawaii showing the area covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending

(1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{62,500}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups:—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slop-

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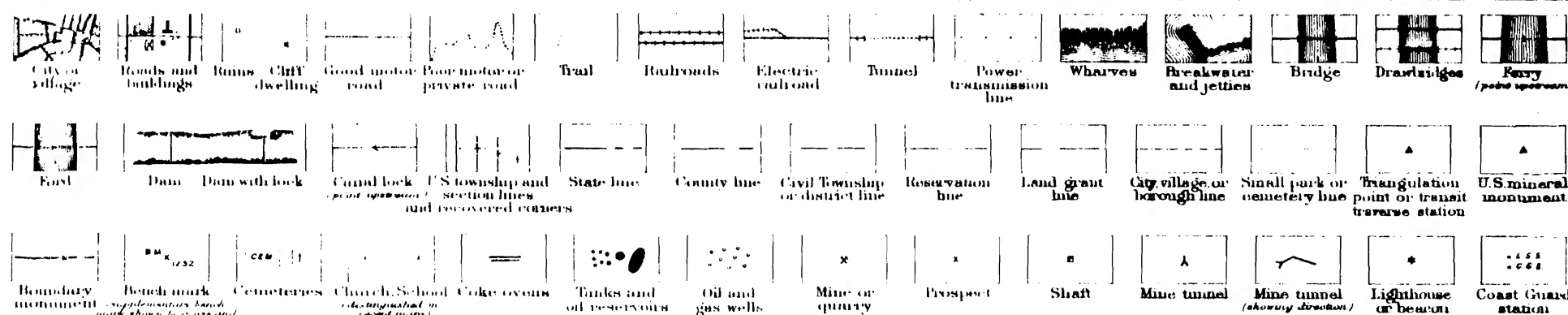
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

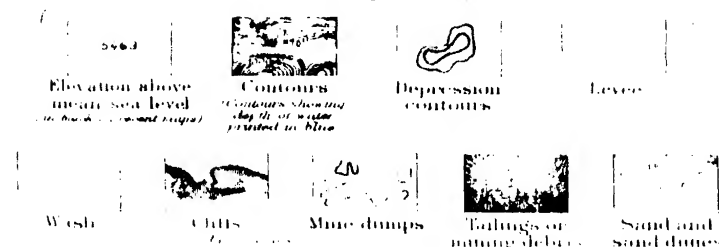
September, 1928.

## STANDARD SYMBOLS

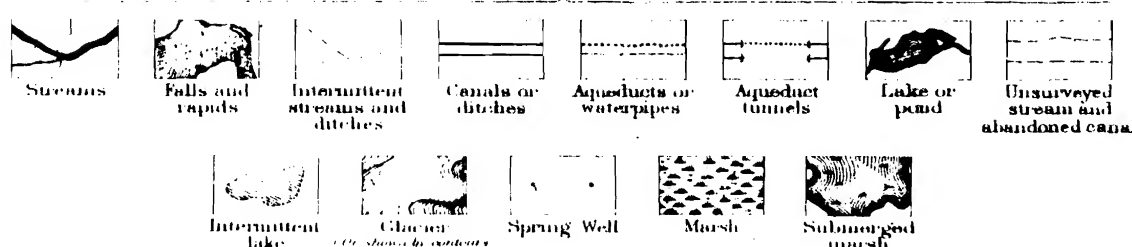
### CULTURE (printed in black)



### RELIEF (printed in brown)



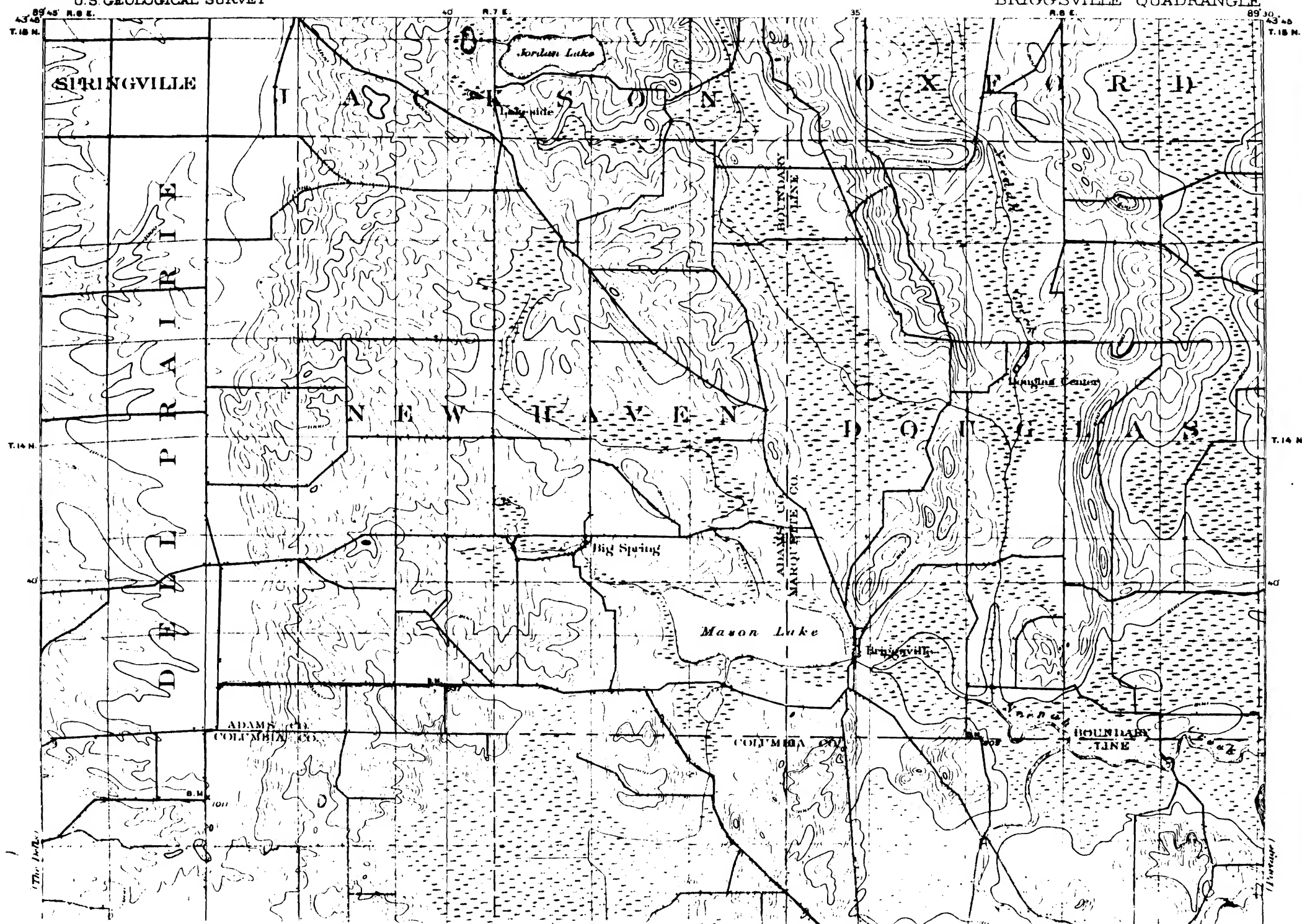
### WATER (printed in blue)



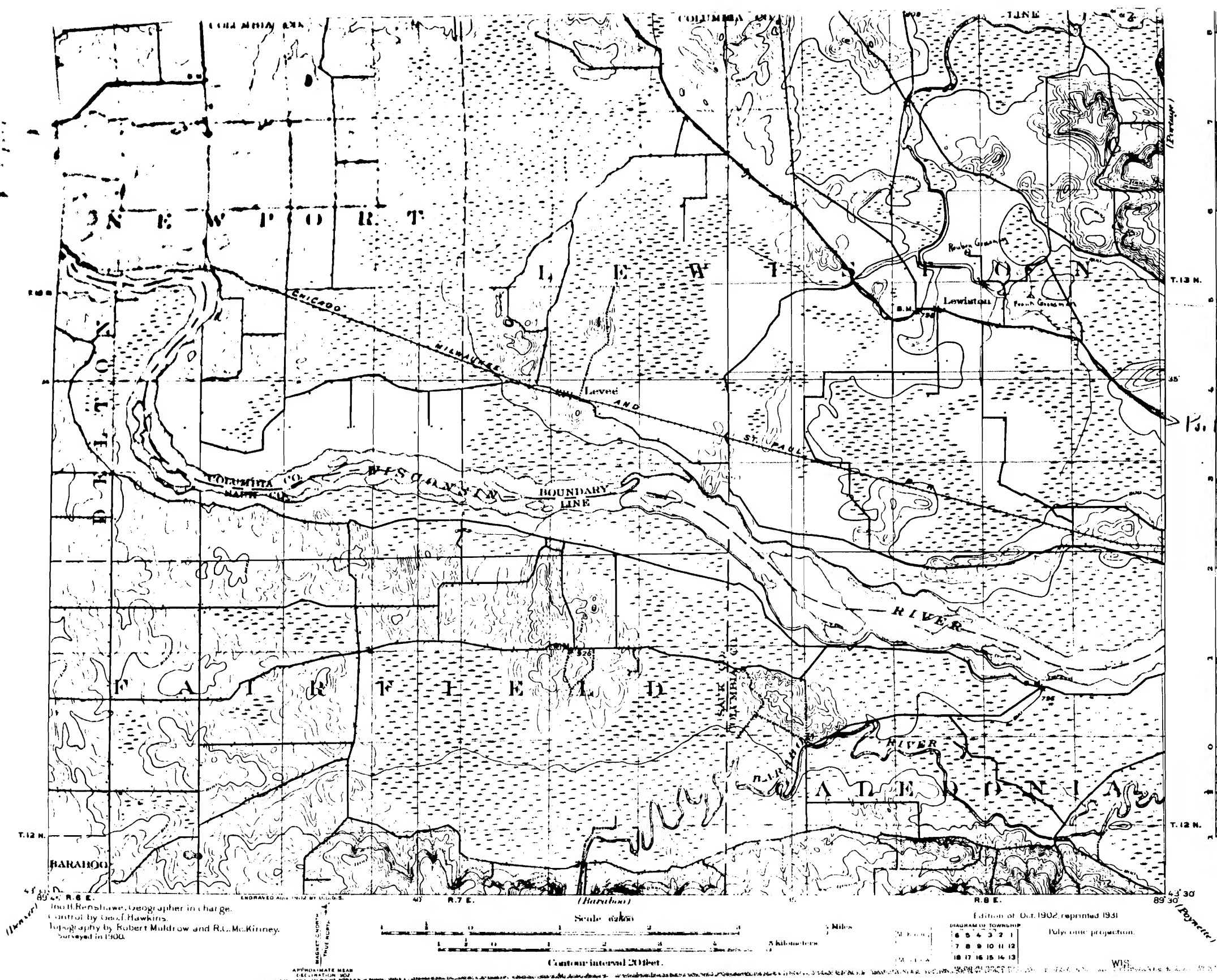
### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

WISCONSIN  
BRIGGSVILLE QUADRANGLE







Where gas  
came from  
found?

Pos. 250

Engraved and printed by U.S.G.S.  
Control by Geo. Hawkins.  
Topography by Robert Muldrow and R.C. McKinney.  
Surveyed in 1900.

Scale 1:62,500  
Miles  
Kilometers  
Contour interval 20 feet.

Section of Oct. 1902, reprinted 1931  
SHADAMIN TOWNSHIP  
6 5 4 3 2 1  
7 8 9 10 11 12  
13 14 15 16 17  
Polyconic projection.

H 11

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a topographic atlas of the United States. This work has been in progress since 1882, and more than 38 per cent of the area of the country, excluding outlying possessions, has now been mapped. The areas mapped are widely distributed, every State being represented, as shown on the progress maps accompanying each annual report of the Director.

This atlas is being published in sheets of convenient size, about 16 by 20 inches. The four-sided area of land represented on an atlas sheet is bounded by parallels and meridians and is called a *quadrangle*. The quadrangles mapped cover 1° of latitude by 1° of longitude, 30' of latitude by 30' of longitude, 15' of latitude by 15' of longitude, or smaller areas, the size of the area mapped depending on the scale used. Several scales are employed. The smallest scale, that used for quadrangles covering 1°, is 1:250,000, or very nearly 4 miles to an inch—that is, 4 linear miles on the ground is represented by 1 linear inch on the map. This scale is used for maps of the desert regions and some other parts of the far West. For the greater part of the country, which is mapped by quadrangles covering 30', a larger scale, 1:125,000, or about 2 miles to an inch, is employed. A still larger scale, 1:62,500, or about a mile to an inch, is used for quadrangles covering 15', the unit selected for mapping thickly settled or industrially important areas. A fourth scale, 1:31,250, or one-half mile to an inch, is employed for maps that are to be used in connection with irrigation or drainage, and a few maps of mining districts are published on still larger scales.

A topographic survey of Alaska has been in progress since 1898 and nearly 50 per cent of its entire area has now been mapped. One-third of the area mapped, or 10 per cent of the Territory, has been covered only by reconnaissance work, the results of which have been mapped on a scale of about 10 miles to an inch. The maps of nearly all the remaining two-thirds of the surveyed area have been published on a scale of 1:250,000, or about 4 miles to an inch. These maps are large, each representing 2° of latitude by 4° of longitude. A few areas that are of economic importance, aggregating about 5,000 square miles, have been surveyed in greater detail and mapped on a scale of 1:62,500, or about a mile to an inch.

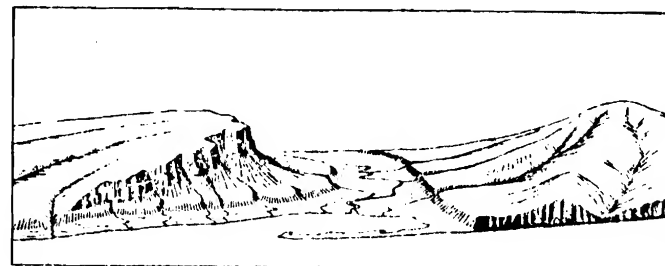
A survey of the Hawaiian Islands was begun in 1910 and the resulting maps are being published on a scale of 1:62,500.

The features shown on these atlas sheets or maps may be

All water features are printed in *blue*, the smaller streams and canals in full blue lines and the larger streams, lakes, and the sea in blue water-lining. Intermittent streams—those whose beds are dry at least three months in the year—are shown by lines of dots and dashes.

Relief is shown by contour lines in *brown*. A contour on the ground passes through points that have the same altitude. One who follows a contour will go neither uphill nor downhill but on a level. The contour lines on the map show not only the shapes of the hills, mountains, and valleys but also their elevations. The line of the sea coast itself is a contour line, the datum or zero of elevation being mean sea level. The contour at, say, 20 feet above sea level would be the shore line if the sea were to rise or the land to sink 20 feet. On a gentle slope this contour is far from the present coast; on a steep slope it is near the coast. Where successive contour lines are far apart on the map they indicate a gentle slope; where they are close together they indicate a steep slope; and where they run together in one line they indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



by a sea cliff. The hill on the left terminates abruptly at the valley in a steep scarp. It slopes gradually back away from the scarp and forms an inclined table-land, which is traversed by a few shallow gullies. On the map each of these features is indicated, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the character of the area mapped; in a flat country it may be as small as 5 feet; in a mountainous region it may be 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures stating elevation above sea level. The heights of many points, such as road corners, summits, surfaces of lakes, and bench marks, are also given on the map in figures, which express the elevations to the nearest foot only. More exact elevations of bench marks, as well as geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey. A bulletin pertaining to any State may be had on application.

The works of man are shown in *black*, in which color all lettering also is printed. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public and through roads are shown by fine double lines; private and poor roads by dashed double lines; trails by dashed single lines.

Each quadrangle mapped for the topographic atlas is designated by the name of a principal town or of some prominent natural feature within the quadrangle, and on the margins of the maps are printed the names of adjoining quadrangles for which atlas sheets have been published or are in preparation. The sheets are sold at 10 cents each in lots of less than 50 copies or at 6 cents each in lots of 50 or more copies, whether of the same or of different sheets.

The topographic map is the base on which the geology and the mineral resources of a quadrangle are represented, the maps showing these features being bound together, with a description of the quadrangle, to form a folio of the Geologic Atlas of the United States. Circulars showing by index maps the published topographic atlas sheets and geologic folios covering any State or region will be sent free on application.

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A survey of the Hawaiian Islands was begun in 1910 and the resulting maps are being published on a scale of 1:62,500.

The features shown on these atlas sheets or maps may be classed in three groups—(1) *water*, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) *relief*, including mountains, hills, valleys, and other elevations and depressions; (3) *culture* (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used for these features are shown below, with explanations. Variations appear on some earlier maps.



The sketch represents a river valley between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends.

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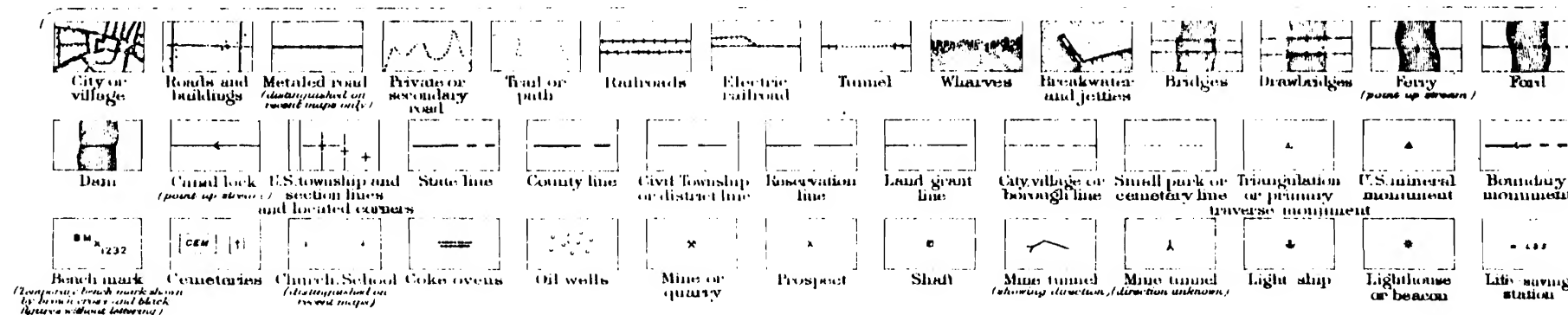
THE DIRECTOR,

United States Geological Survey,  
Washington, D. C.

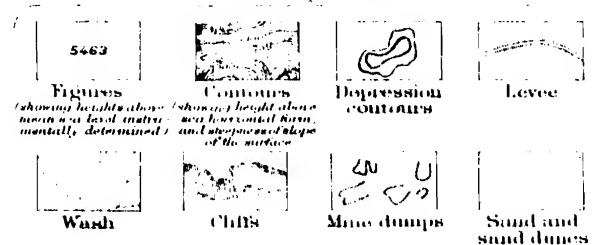
January, 1913.

## CONVENTIONAL SIGNS

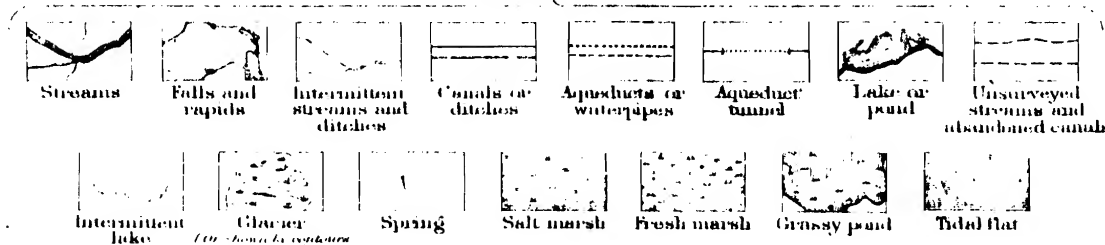
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



### WOODS (when shown, printed in green)

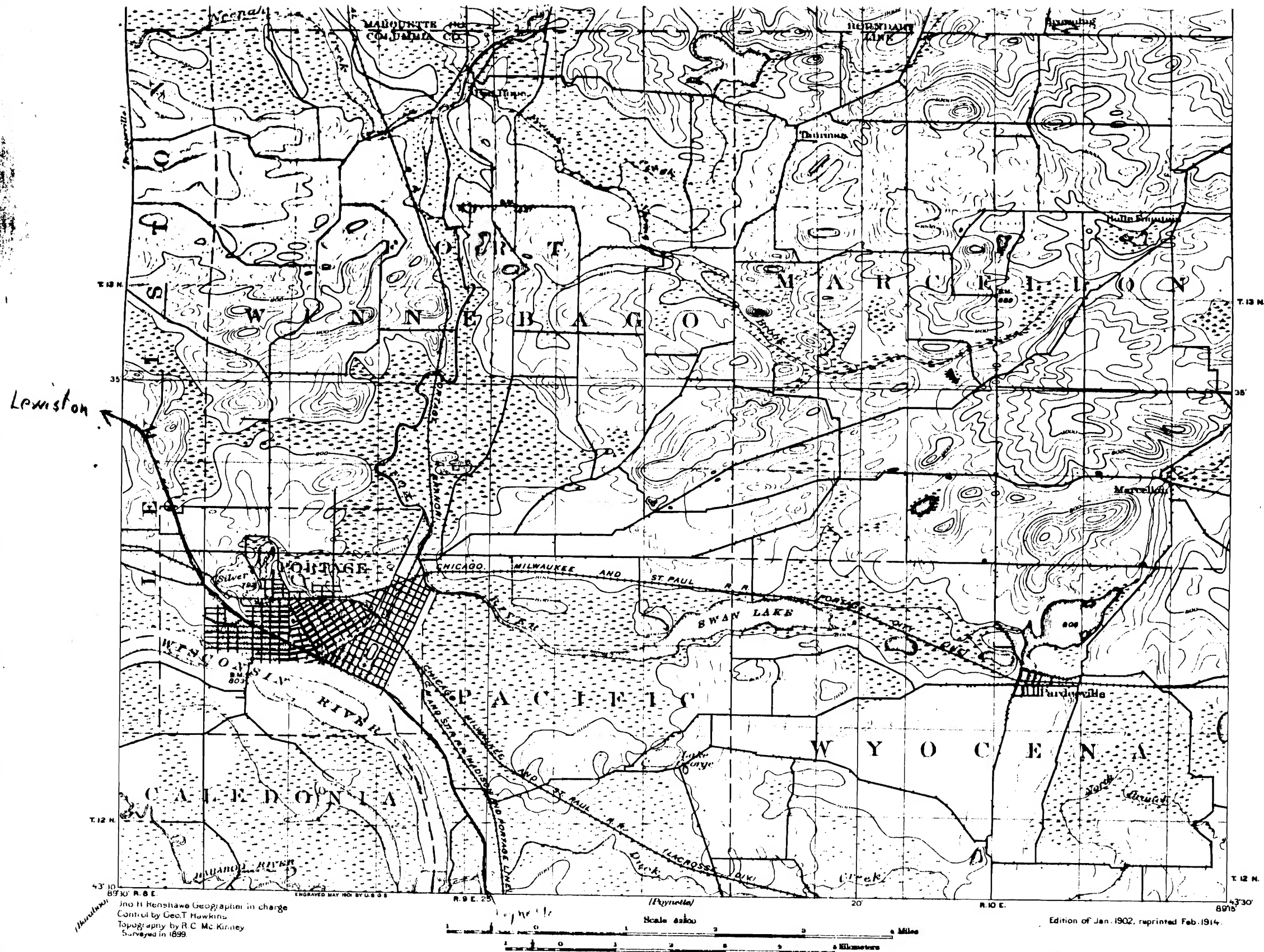
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

# TOPOGRAPHY

WISCONSIN  
PORTAGE QUADRANGLE







Jno. H. Henshaw Geographer in charge  
Control by Geo. T. Hawkins  
Topography by R. C. McKinney  
Surveyed in 1899.

Scale 1:250,000  
1 inch = 4 miles  
1 centimeter = 0.625 miles

Edition of Jan. 1902, reprinted Feb. 1914.

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a topographic atlas of the United States. This work has been in progress since 1882, and more than 38 per cent of the area of the country, excluding outlying possessions, has now been mapped. The areas mapped are widely distributed, every State being represented, as shown on the progress maps accompanying each annual report of the Director.

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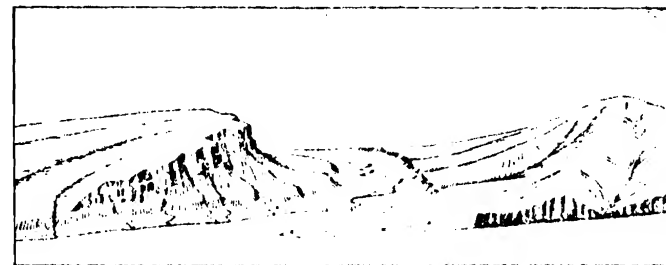
A topographic survey of Alaska has been in progress since 1898 and nearly 30 per cent of its entire area has now been mapped. One-third of the area mapped, or 10 per cent of the Territory, has been covered only by reconnaissance work, the results of which have been mapped on a scale of about 10 miles to an inch. The maps of nearly all the remaining two-thirds of the surveyed area have been published on a scale of 1:250,000, or about 4 miles to an inch. These maps are large, each representing 2° of latitude by 4° of longitude. A few areas that are of economic importance, aggregating about 3,000 square miles, have been surveyed in greater detail and mapped on a scale of 1:62,500, or about a mile to an inch.

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Relief is shown by contour lines in *brown*. A contour on the ground passes through points that have the same altitude. One who follows a contour will go neither uphill nor downhill but on a level. The contour lines on the map show not only the shapes of the hills, mountains, and valleys but also their elevations. The line of the sea coast itself is a contour line, the datum or zero of elevation being mean sea level. The contour at, say, 20 feet above sea level would be the shore line if the sea were to rise or the land to sink 20 feet. On a gentle slope this contour is far from the present coast; on a steep slope it is near the coast. Where successive contour lines are far apart on the map they indicate a gentle slope; where they are close together they indicate a steep slope; and where they run together in one line they indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



by a sea cliff. The hill on the left terminates abruptly at the valley in a steep scarp. It slopes gradually back away from the scarp and forms an inclined table-land, which is traversed by a few shallow gullies. On the map each of these features is indicated, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the character of the area mapped; in a flat country it may be as small as 5 feet; in a mountainous region it may be 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures stating elevation above sea level. The heights of many points, such as road corners, summits, surfaces of lakes, and bench marks, are also given on the map in figures, which express the elevations to the nearest foot only. More exact elevations of bench marks, as well as geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey. A bulletin pertaining to any State may be had on application.

The works of man are shown in *black*, in which color all lettering also is printed. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public and through roads are shown by fine double lines; private and poor roads by dashed double lines; trails by dashed single lines.

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The topographic map is the base on which the geology and the mineral resources of a quadrangle are represented, the maps showing these features being bound together, with a description of the quadrangle, to form a folio of the Geologic Atlas of the United States. Circulars showing by index maps the published topographic atlas sheets and geologic folios covering any State or region will be sent free on application.

For further information, or for application, should be accompanied by

area that one of our most important, aggregating about 8,000 square miles, have been surveyed to greater detail and mapped on a scale of 1:62,500, or about a mile to an inch.

A survey of the Hawaiian Islands was begun in 1910 and the resulting maps are being published on a scale of 1:62,500.

The features shown on these atlas sheets or maps may be classed in three groups—(1) *water*, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) *relief*, including mountains, hills, valleys, and other elevations and depressions; (3) *culture* (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used for these features are shown below, with explanations. Variations appear on some earlier maps.



The sketch represents a river valley between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends.

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THE DIRECTOR,

United States Geological Survey,  
Washington, D. C.

January, 1915.

## CONVENTIONAL SIGNS

### CULTURE (printed in black)

City or village	Roads and buildings	Metalled road (distinguished on road maps only)	Private or secondary road	Trail or path	Railroads	Electric railroad	Tunnel	Wharves	Breakwater and piers	Bridges	Drawbridges	Ferry (print up stream)	Ford
Dam	Canal lock (print up stream)	U.S. township and section lines and located corners	State line	County line	Civil township or district line	Reservation line	Land grant line	City village or borough line	Small park or cemetery line	Triangulation or primary traverse monument	U.S. national monument	Boundary monument	
Bench mark (Temporary bench mark shown by brown cross and black figure without lettering)	Cemeteries	Church, School, Coke ovens (distinguished on road maps)	Oil wells	Mine or quarry	Prospect	Shaft	Mine tunnel (along strike line)	Mine tunnel (direction unknown)	Light ship	Lighthouse or beacon	Life saving station		

### RELIEF (printed in brown)

Figures (showing heights above sea level; height shown means sea level; height shown means not sea level; height shown means not sea level; height shown means not sea level)	Contours	Depression contours	Levee
Wash	Cliffs	Mine dumps	Sand and sand dunes

### WATER (printed in blue)

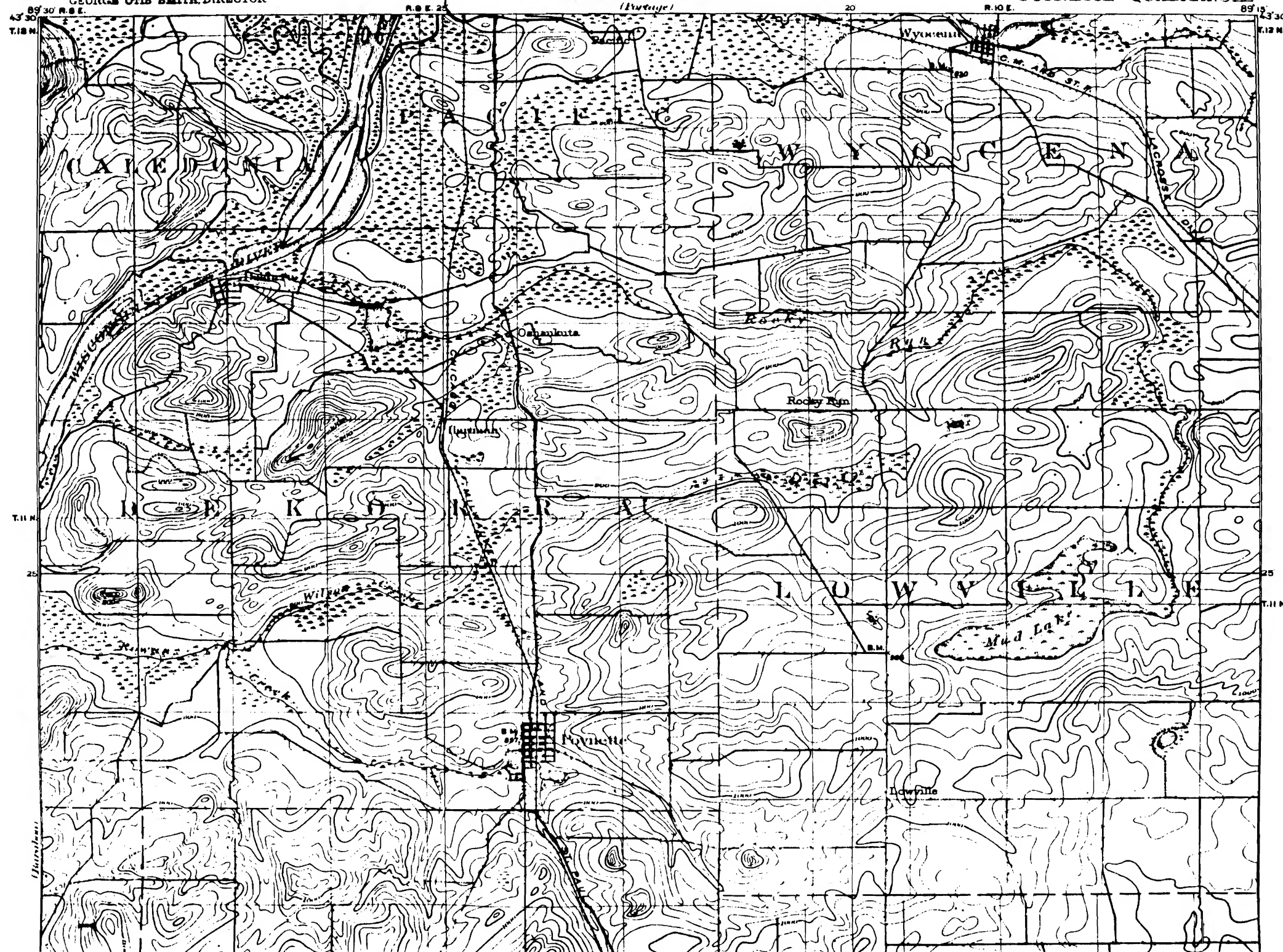
Streams	Falls and rapids	Intermittent streams and ditches	Canals or ditches	Aqueducts or waterpipes	Aqueduct tunnel	Lake or pond	Unsurveyed streams and abandoned canals
Intermittent lake	Cliff (when shown, printed in green)	Spring	Salt marsh	Fresh marsh	Grassy pond	Tidal flat	

### WOODS (when shown, printed in green)

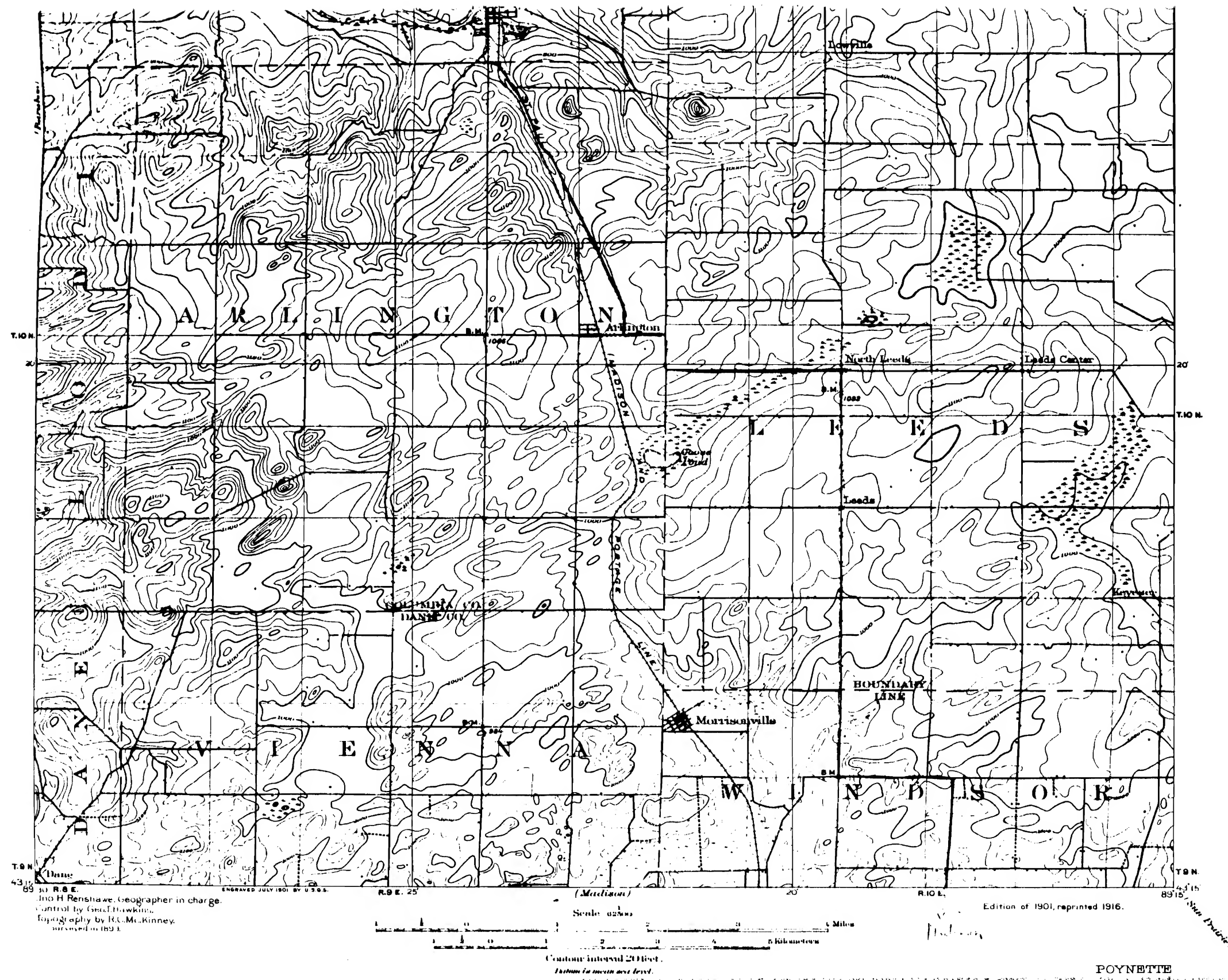
DEPARTMENT OF THE INTERIOR  
FRANKLIN K. LANE, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY

WISCONSIN  
POYNETTE QUADRANGLE







#12

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{31,250}$  (1 inch=one-half mile), with a contour interval of 1, 5, or 10 feet.
2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch=nearly 1 mile), with a contour interval of 10 to 25 feet.
3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch=nearly 2 miles), with a contour interval of 25 to 100 feet.

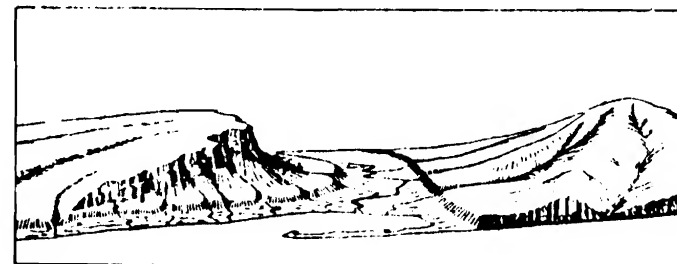
A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$  but about 4,000 square miles

boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metaled roads are shown by double lines, one of which is accentuated. Other public roads are shown by fine double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,000 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 200 folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will

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A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{100,000}$ .

About half of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{100,000}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at

STATUS. More than 200,000 copies have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

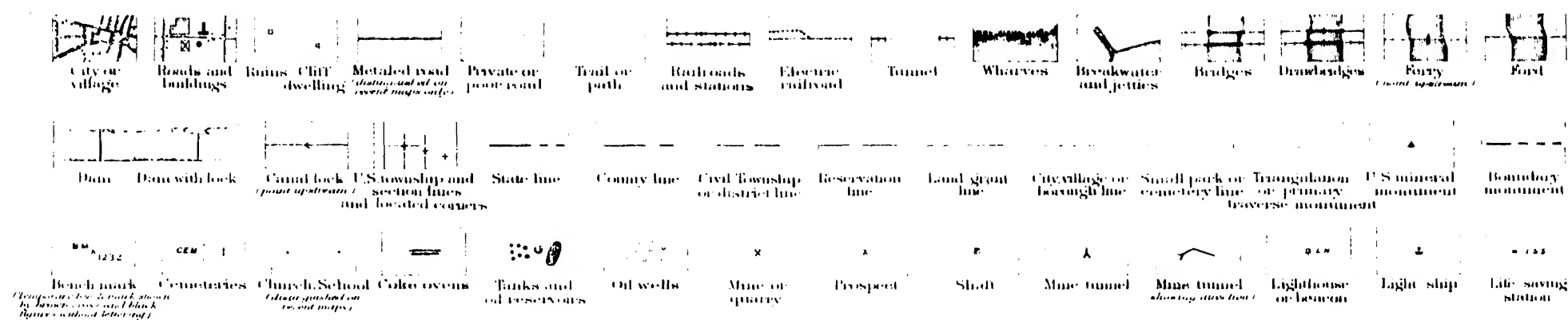
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

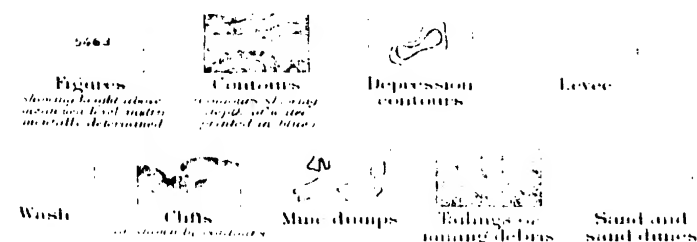
January, 1924.

## CONVENTIONAL SIGNS

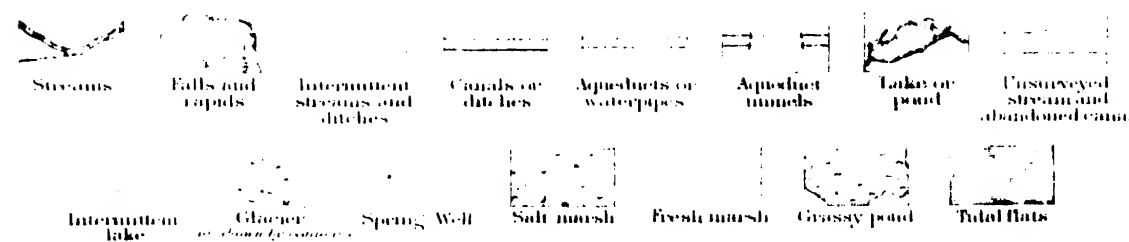
### CULTURE (printed in black)



### RELIEF (printed in brown)



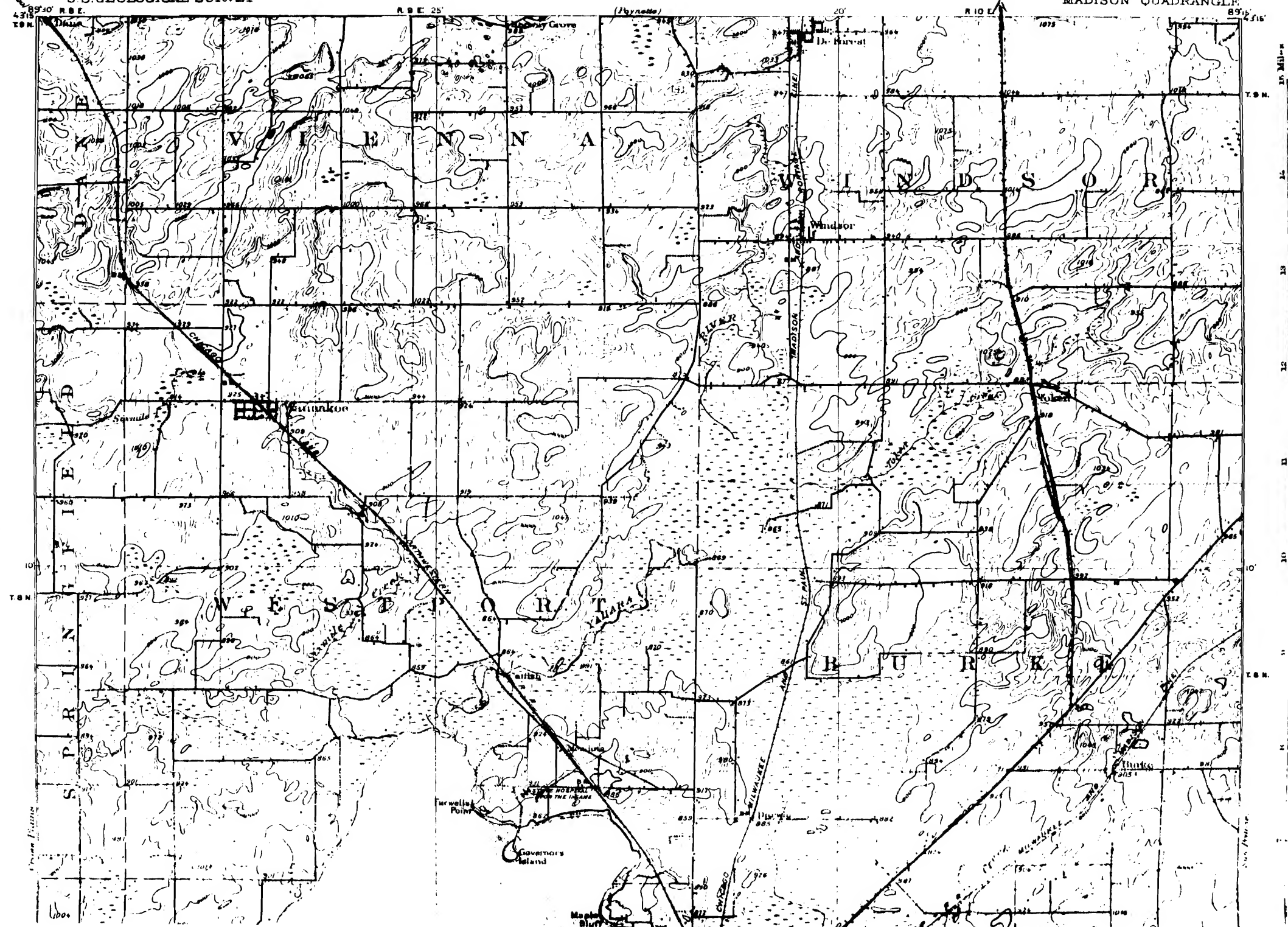
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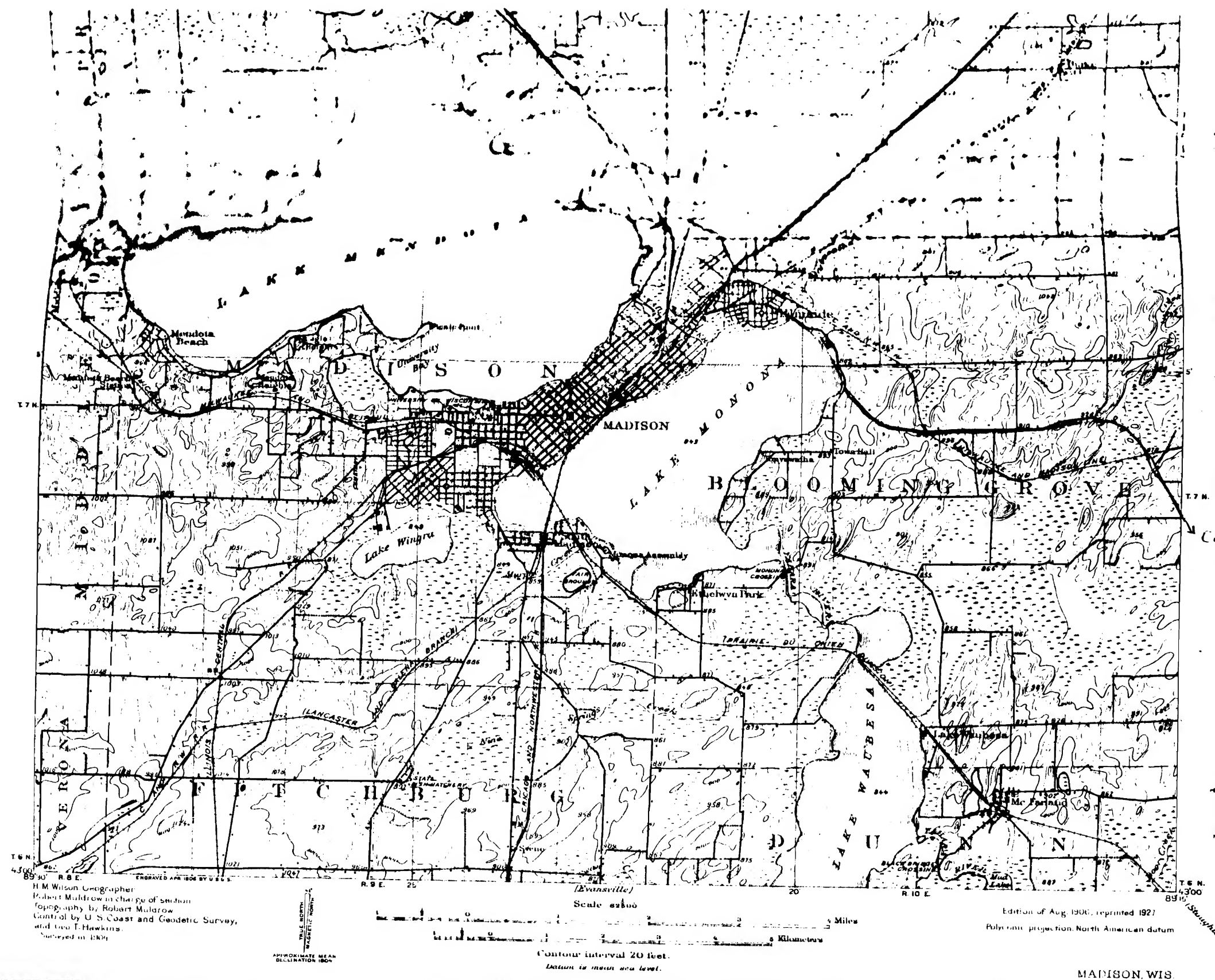
### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

Paynette WISCONSIN  
(DANE COUNTY)  
MADISON QUADRANGLE







ENGRAVED AND PUBLISHED BY U.S.S.  
H.M. Wilson, Geographer  
Robert Muldrow in charge of section  
Topography by Robert Muldrow  
Control by U.S. Coast and Geodetic Survey,  
and Geo. T. Hawkins  
Surveyed in 1906

APPROXIMATE MEAN  
DECLINATION 1904

Scale 1:250,000  
Miles  
Kilometers  
Contour interval 20 feet.  
Datum is mean sea level.

Edition of Aug. 1906, reprinted 1927  
Polyconic projection, North American datum

MADISON, WIS.

Cambridge

#11

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps or atlas sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for any quadrangle depending on its nature and its probable future development, and consequently though the standard atlas sheets are of nearly uniform size they represent areas of different sizes. On the lower margin of each sheet are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a representative fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

The standard scales used on these maps are multiples of the fraction  $\frac{1}{62,500}$ . Quadrangles in thickly settled or industrially important regions are mapped on a scale of  $\frac{1}{62,500}$  or about 1 mile to an inch, and cover areas measuring 15' in latitude and longitude. Quadrangles in less thickly settled or industrially less important districts are mapped on a scale of  $\frac{1}{125,000}$  or about 2 miles to an inch, and cover areas measuring 30' in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of  $\frac{1}{250,000}$  or about 4 miles to an inch, covering areas measuring 1° in latitude and longitude. Maps for special purposes are made on scale larger than  $\frac{1}{62,500}$ .

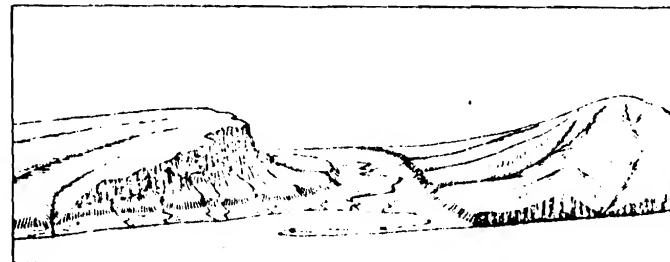
A topographic survey of Alaska has been in progress since 1898, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{125,000}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$  but about 3,500 square miles has been mapped on a scale of  $\frac{1}{62,500}$ .

A large part of the Hawaiian Islands has been surveyed,

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in mapping only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour, for example, would be the shore line if the sea should rise 20 feet. Contour lines show the shapes of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins that are issued free by the Geological Survey.

The lettering and works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metaled roads are shown by double lines, one of which is accentuated. Other public roads are shown by fine double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of the principal city, town, or natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,800 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States.

Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price

Almost 10 per cent of the Territory has been covered by scale maps on a scale of  $\frac{1}{62,500}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$  but about 8,500 square miles has been mapped on a scale of  $\frac{1}{250,000}$ .

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes.

Index maps of each State showing the topographic and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

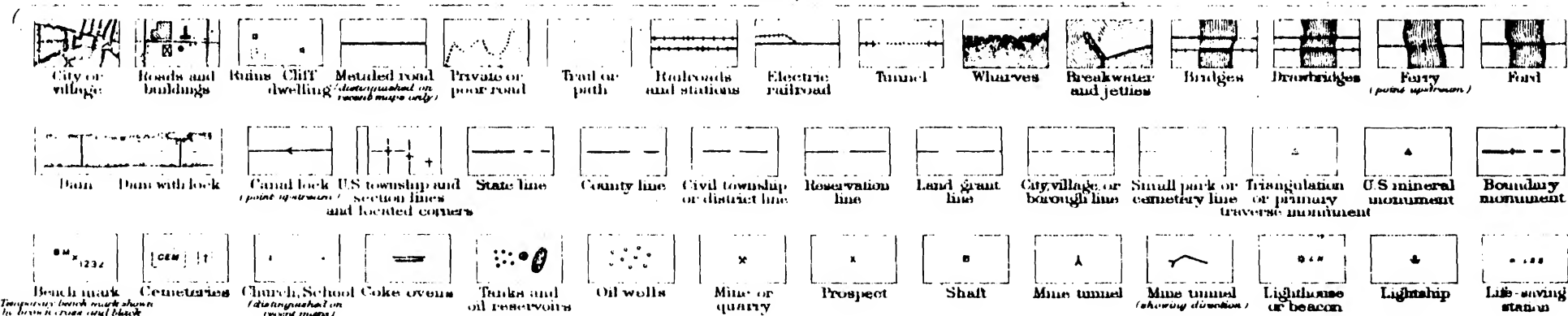
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

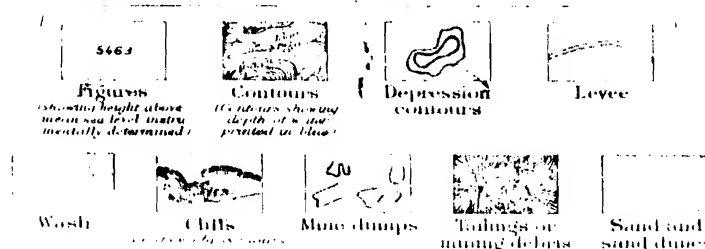
November, 1919.

## CONVENTIONAL SIGNS

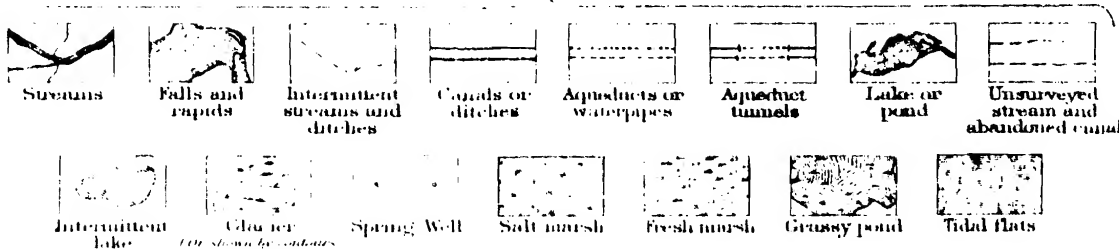
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

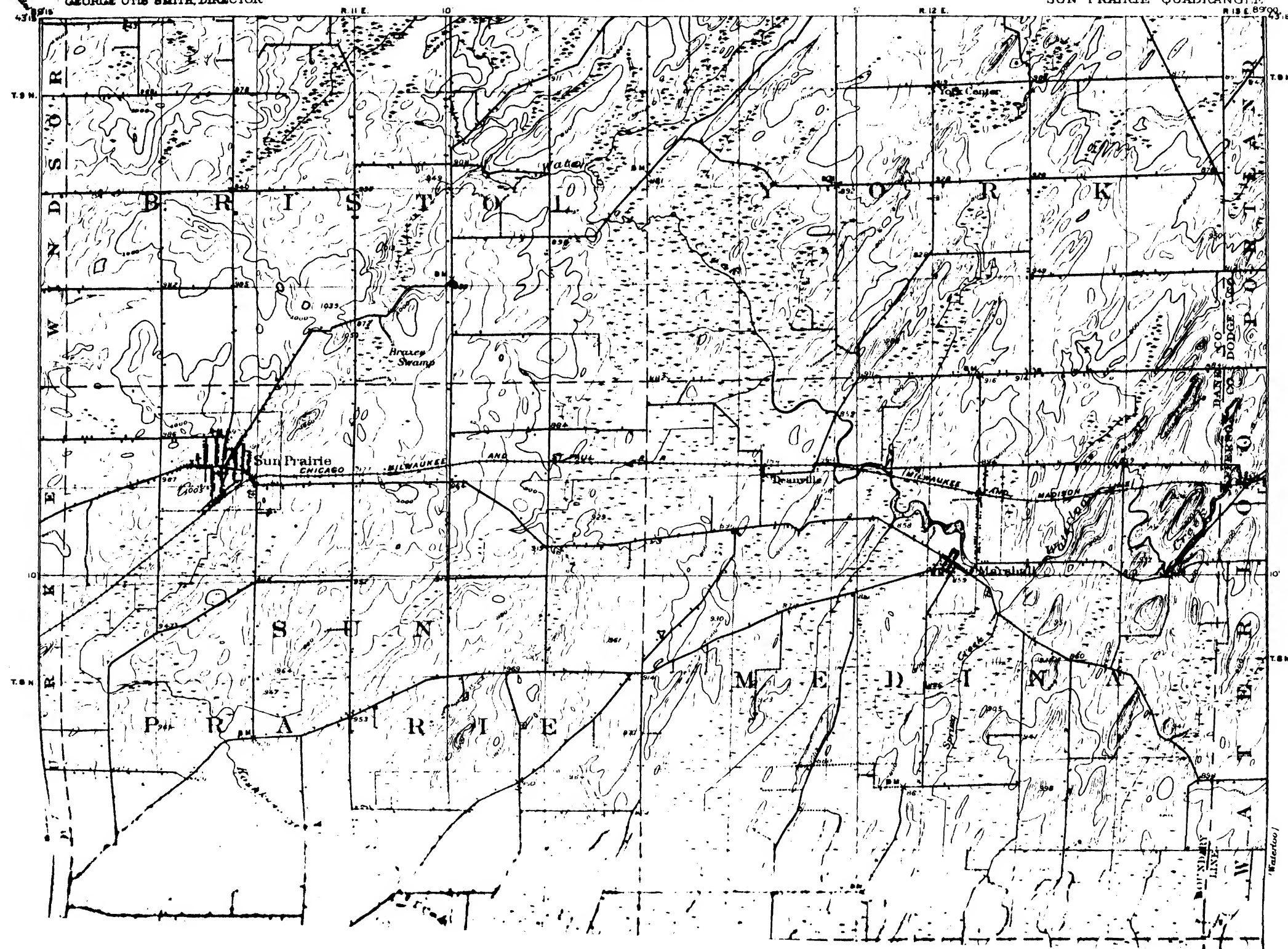


### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
ALBERT B. FALL, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

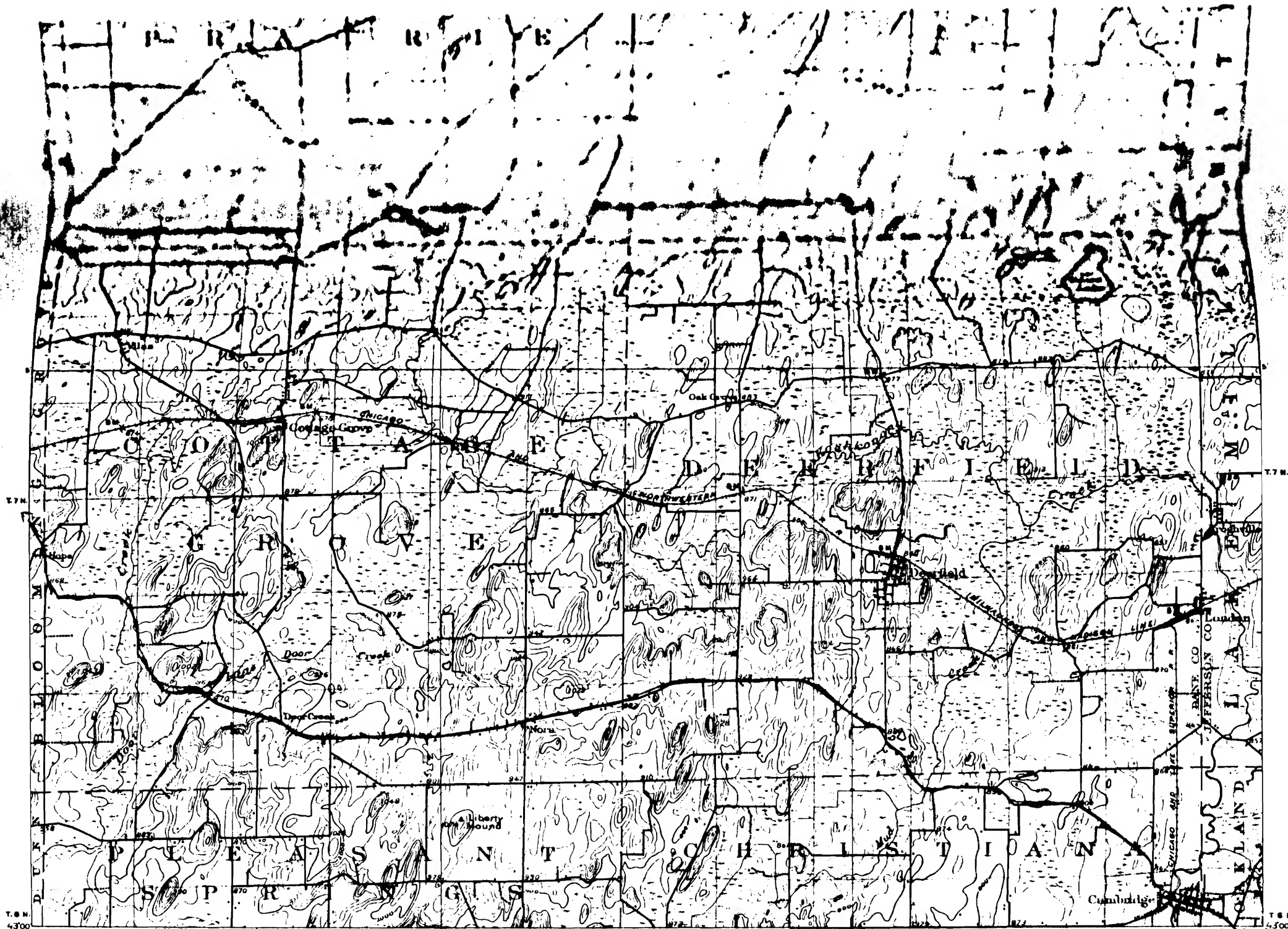
# TOPOGRAPHY

WISCONSIN  
SUN PRAIRIE QUADRANGLE





Madison



H. M. Wilson, Geographer  
Robert Muldrow in charge of section.  
Topography by A. T. Fowler.  
Triangulation by Coast and Geodetic Survey.  
Surveyed in 1905

APPROXIMATE MEAN  
DECLINATION 1900



Contour interval 20 feet.  
Datum is mean sea level.

Diagram of Township
6 5 4 3 2 1
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30
31 32 33 34 35 36

Edition of May 1907, reprinted 1927

SUN PRAIRIE

#10

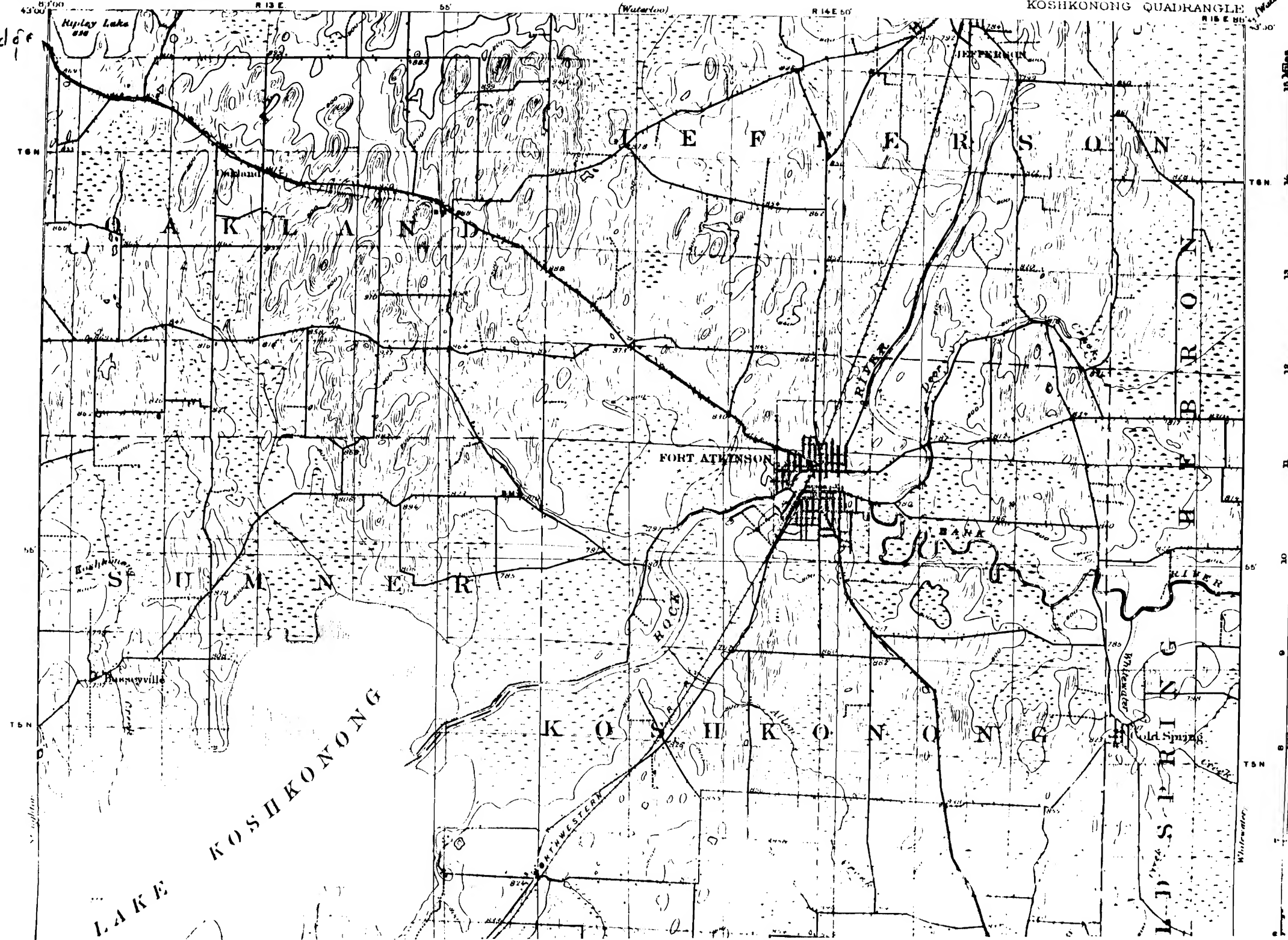




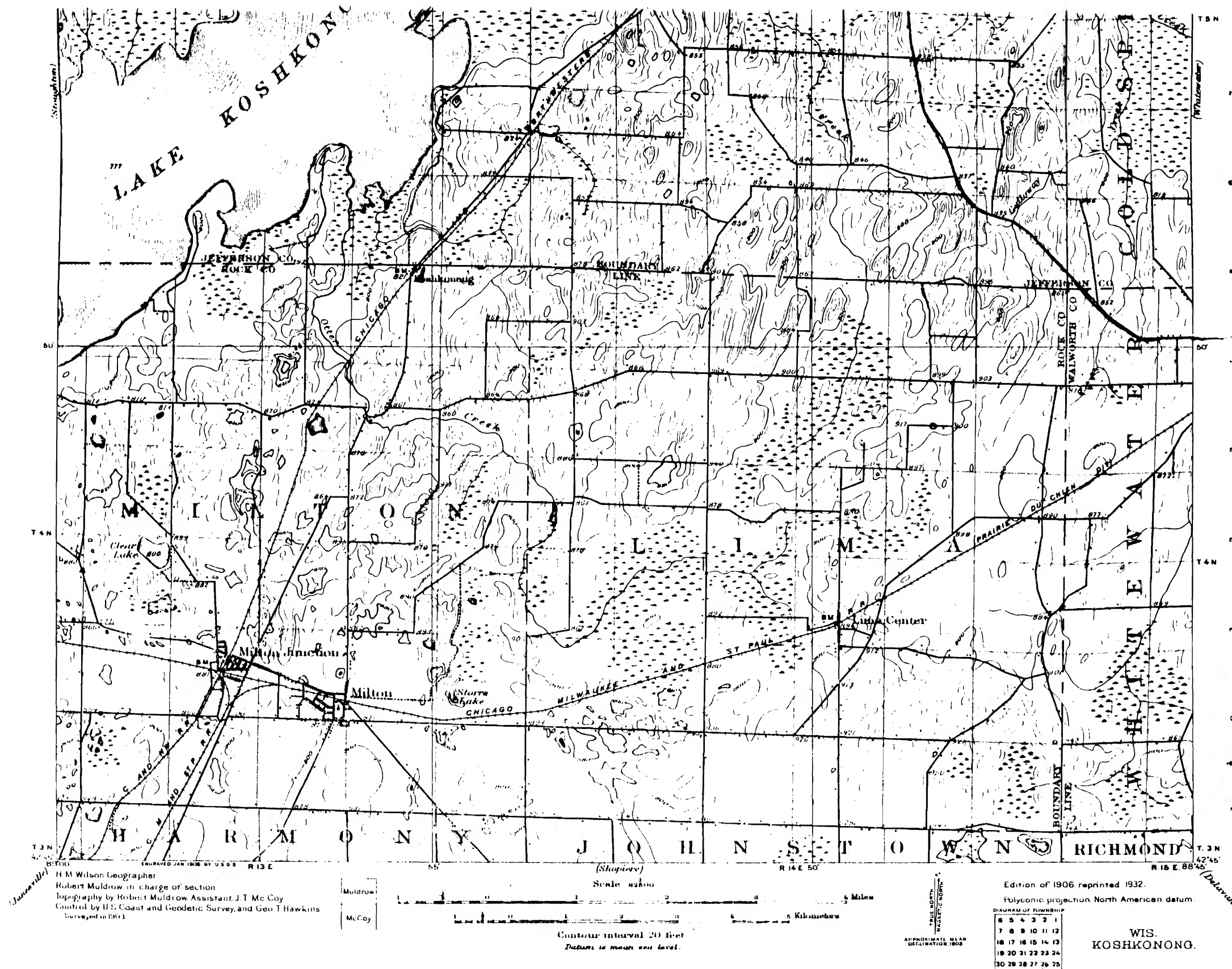
DEPARTMENT OF THE INTERIOR  
U S GEOLOGICAL SURVEY

WISCONSIN  
KOSHKONONG QUADRANGLE

Cambridge







## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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This topographic atlas is published in the form of map on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales shown in distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a horizontal distance on the map and corresponding distance on the ground. For example, the scale of a map is 1 inch to 1 foot on the map, such as 1 inch, 1 foot, or 1 mile, means that 1 inch on the map represents 1 foot on the earth's surface.

For the purpose of general survey and some maps are compiled on a special scale for special purposes, the standard topographic maps for the United States proper and the outlying possessions have for many years been divided into three classes, as follows:

1. Areas in which there are problems of great importance, such as, for example, to make a development of water power, or where the location of water areas are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch to 1 mile, with a contour interval of 10 to 25 feet.

2. Areas in which there are problems of average importance, such as, for example, the basin of the Mississippi River, where the location of water areas are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch to nearly 2 miles, with a contour interval of 10 to 25 feet.

3. Survey of areas in which the problems are of minor importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch to nearly 2 miles, with a contour interval of 25 to 100 feet.

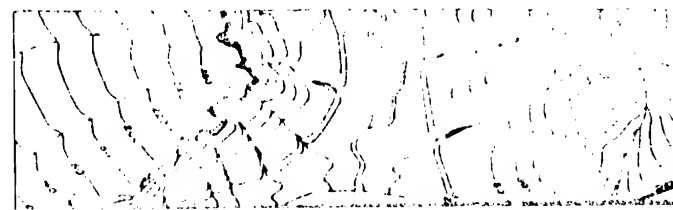
A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by recon-

struction. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the sea coast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



their lower ends by a cliff. The hill in the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

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Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,000 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 200 folios have been published.

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4

10

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**1.1**

1

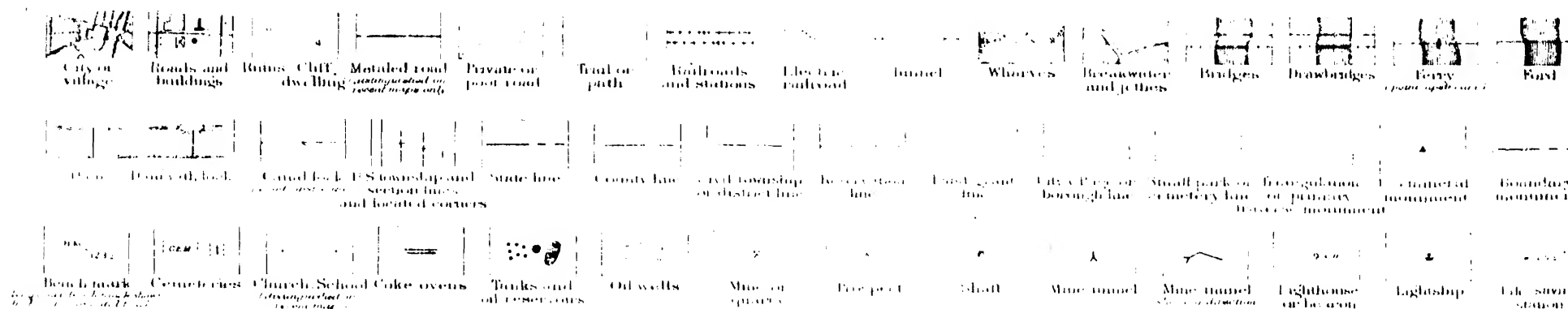
5

**A**

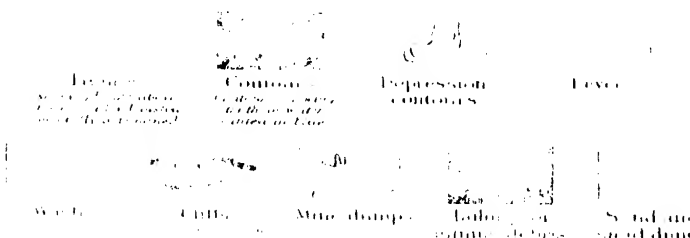
J

### CONVENTIONAL SIGN

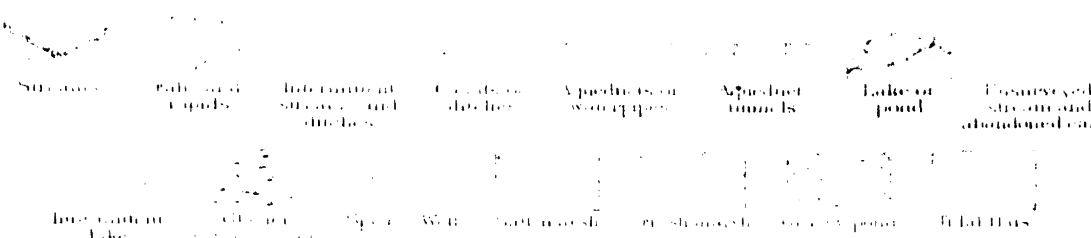
CULTURE  
printed in black



upright in brown



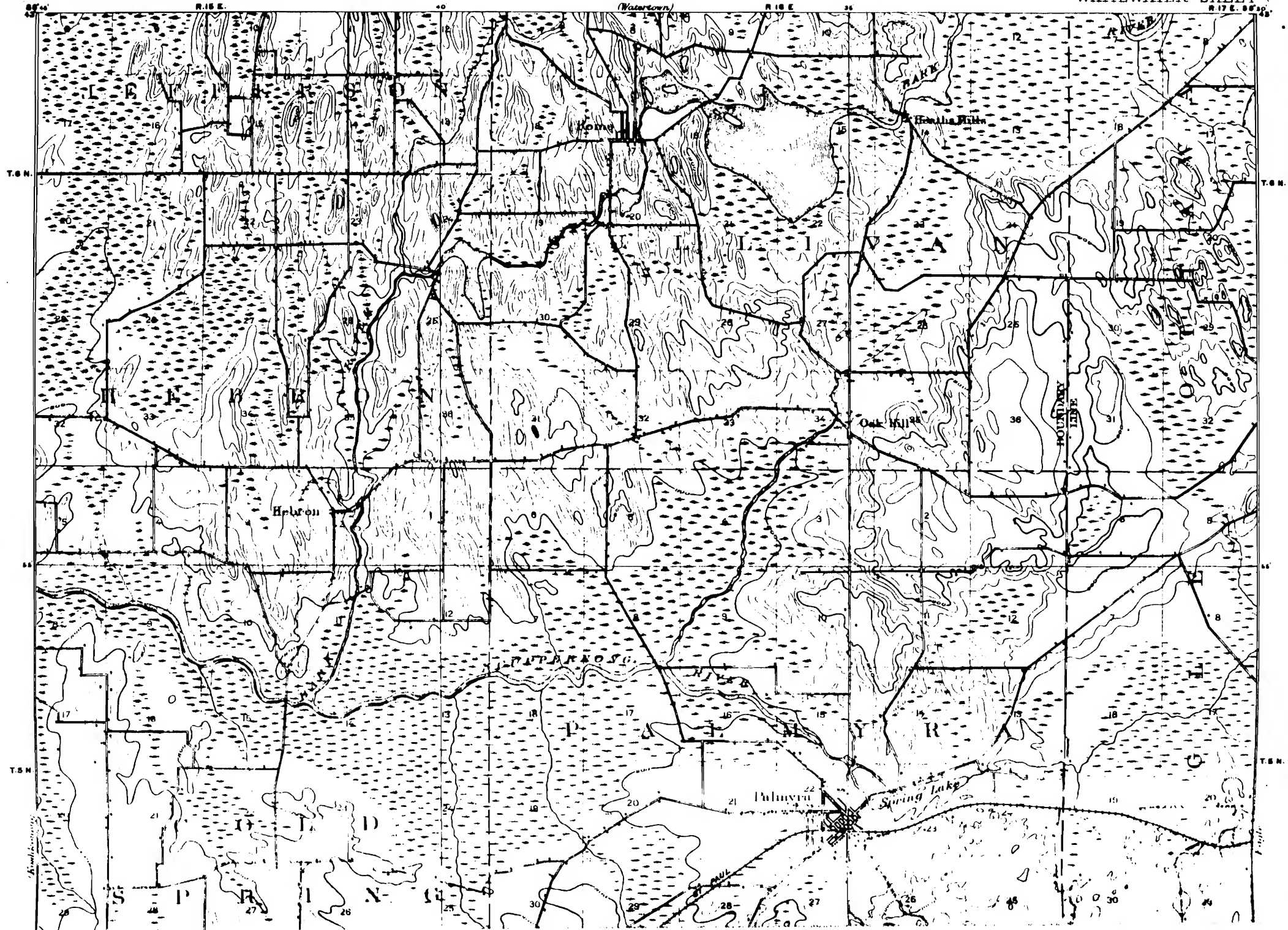
WATER



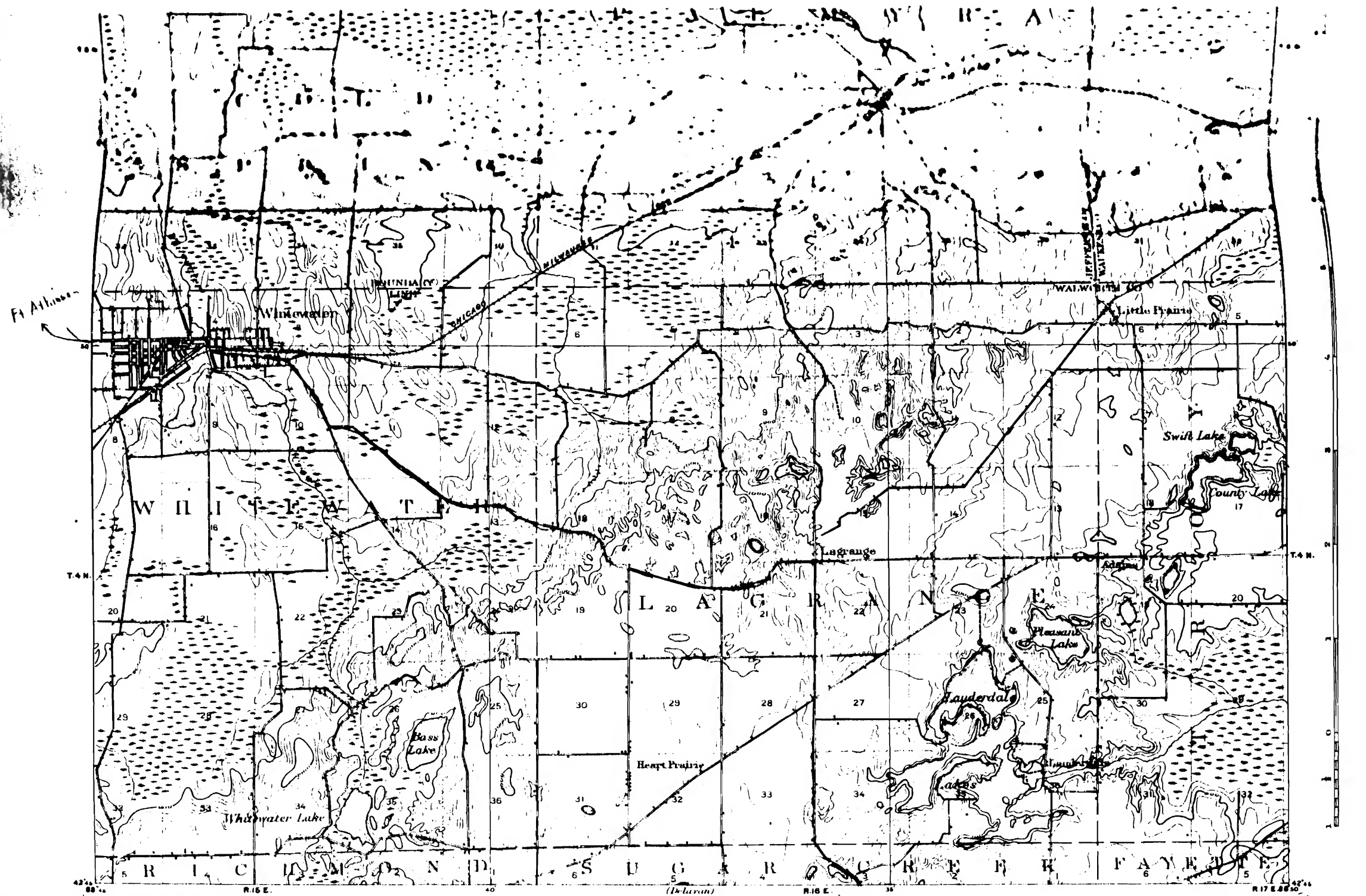
## W. SODS,

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

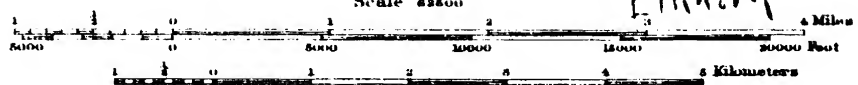
WISCONSIN  
WHITEWATER SHEET







Henry Gannett Chief Topographer.  
 Geo. H. Henshaw, Geographer in charge.  
 Triangulation by the U.S. Coast and Geodetic and Lake Surveys.  
 Topography by Van H. Manning, Jr.  
 Surveyed in 1889.  
 Revised in 1903 by H. L. McDonald.



Contour interval 20 feet.  
 Datum is mean sea level.

WHITE WATER, WIS.  
 Edition of 1924

45

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 42 per cent of the country, exclusive of outlying possessions.

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Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the general topographic surveys for the United States proper and its territories have for many years been divided into three classes, differentiated as follows:

4. Surveys of areas in which there are problems of great public importance (relating, for example, to natural development, migration, or reclamation of swamp areas) are made with the greatest accuracy to be used in the publication. They appear on a 1:50,000 scale of both scale and size, with a contour interval of 100 m (330 ft).

[illegible][illegible]

the  $\beta$  phase of the polymer. The  $\beta$  phase is the more ordered phase and is characterized by a higher density and a higher melting point than the  $\alpha$  phase. The  $\beta$  phase is also the more stable phase and is the one that is most commonly observed in nature. The  $\alpha$  phase is the less ordered phase and is characterized by a lower density and a lower melting point than the  $\beta$  phase. The  $\alpha$  phase is also the less stable phase and is the one that is most commonly observed in nature.

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams--those whose beds are dry for a large part of the year--are shown by lines of blue dots and dashes.

Relief is shown by contour lines—in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the sea-coast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the tops of the hills, mountains, and valleys, as well as their altitudes. Since five contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The number in which content line  $i$  appears ( $\text{line}_i$ ), and, and  $\text{grade}_i$  is shown in the figure below.

ing apart, separated by ravines. The spurs are truncated at their lower end by a scarp cliff. The hill at the left terminates abruptly at the valley in a steep escarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinate of triangulation stations, are published in bulletins issued by the Geological Survey.

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Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margin of the map are printed the names of adjoining quadrangles of which maps have been published. Over 1,500 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this leaf have been published.

The topological map is the base on which the  $\mu$ -cycles and oriented triangles of a quadrangle are represented, and the same boundary arcs are then attached together with new  $\sigma_1^+$

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 Printed in Canada. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher.

For the case of a non-ideal fluid, the Navier-Stokes equations are solved numerically using a finite difference method. The results are compared with the analytical solution for the case of an ideal fluid. The results show that the numerical solution is in good agreement with the analytical solution for the case of an ideal fluid. For the case of a non-ideal fluid, the numerical solution is in good agreement with the analytical solution for the case of an ideal fluid. The results show that the numerical solution is in good agreement with the analytical solution for the case of an ideal fluid. The results show that the numerical solution is in good agreement with the analytical solution for the case of an ideal fluid.

A topographic survey of Alaska has been in progress since 1898, and nearly 45 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{100,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping sides.

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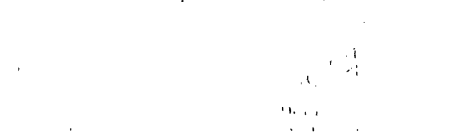
THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

September, 1928.

## STANDARD SYMBOLS

### CULTURE (printed in black)


### RELIEF (printed in brown)

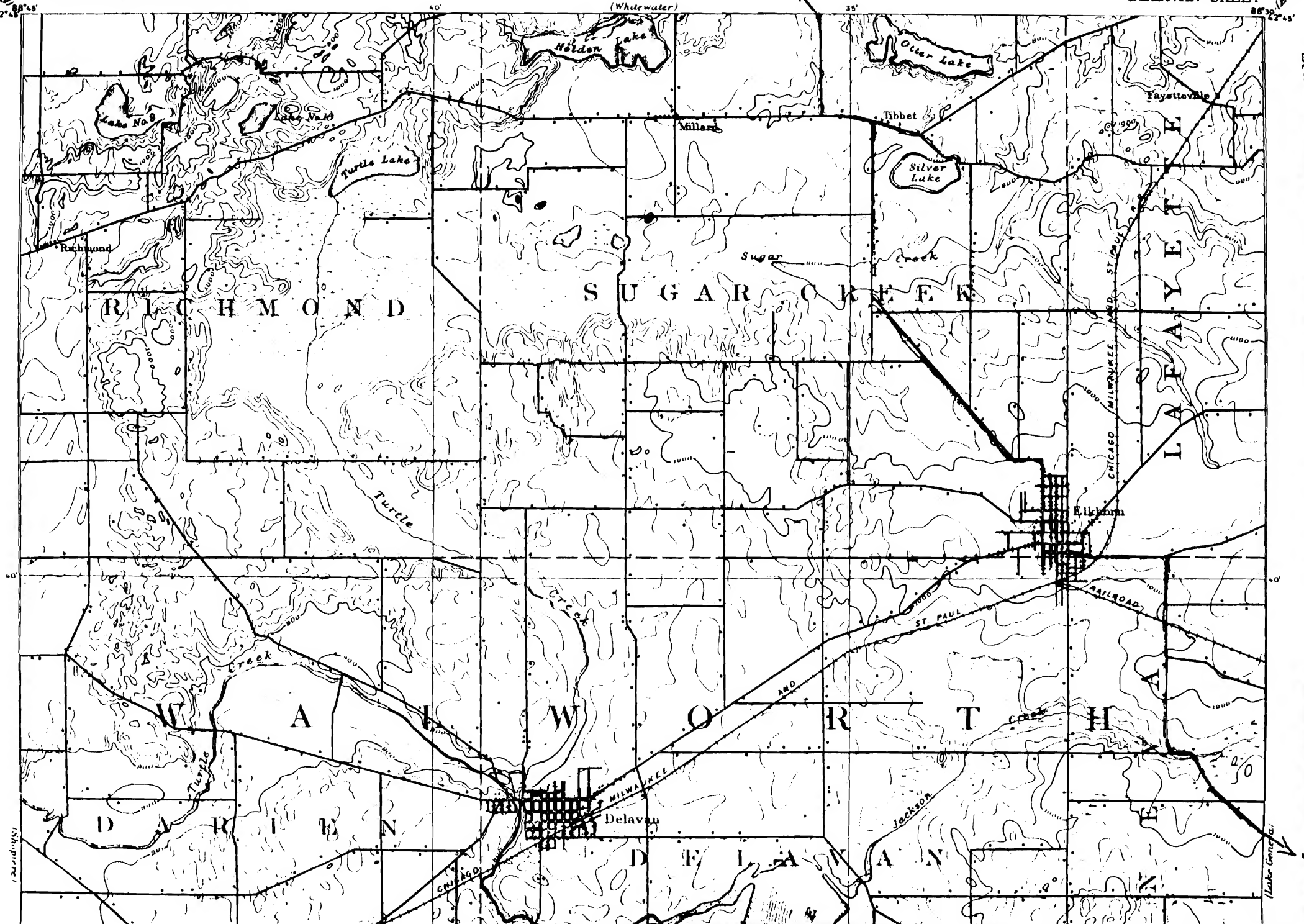


### WATER (printed in blue)



DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

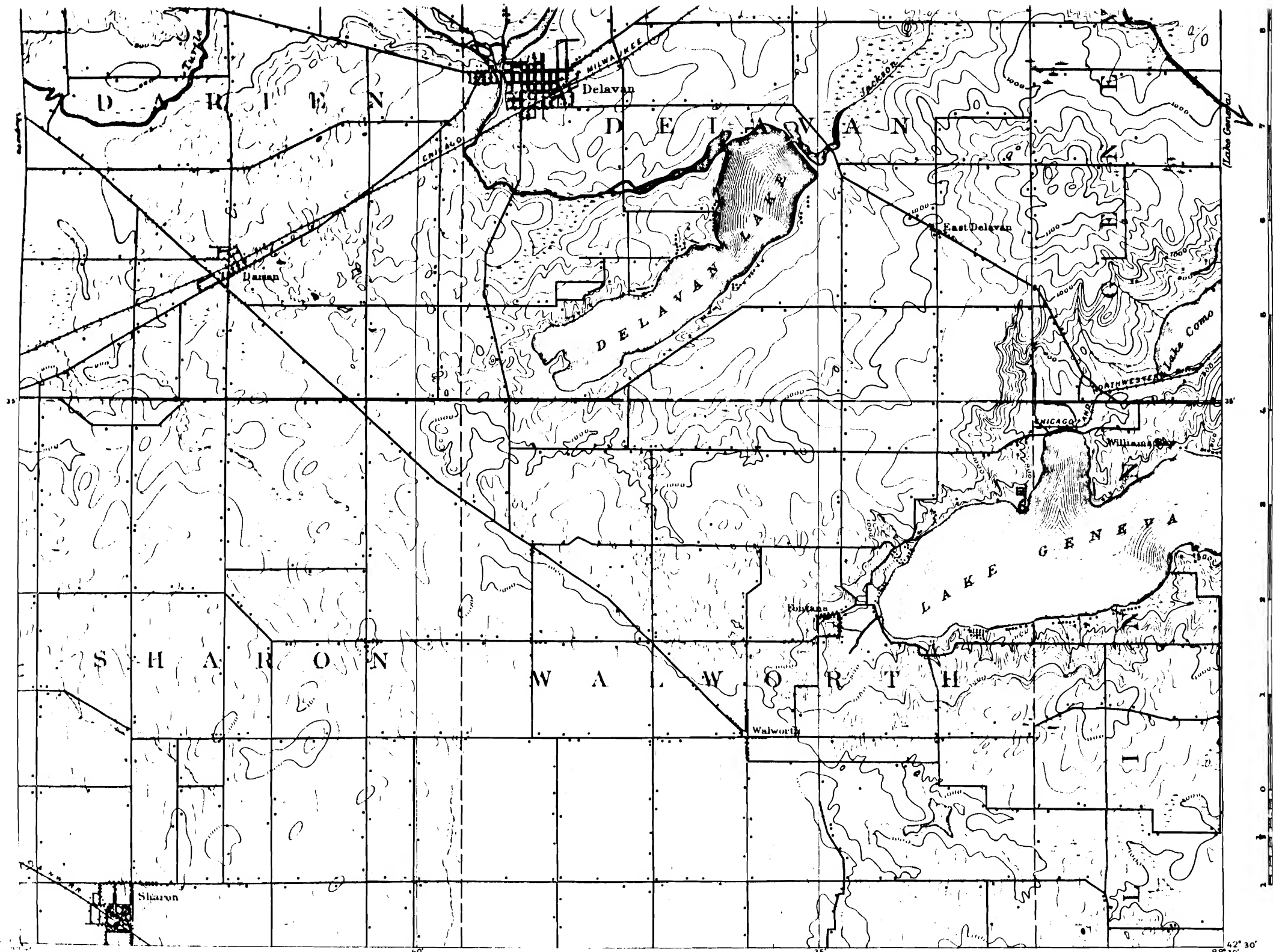
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Lohr G. M. V.





U.S. GEOLOGICAL SURVEY  
 OFFICE OF GEOGRAPHIC NAMES  
 WASHINGTON, D.C.  
 1932

Scale 1:62,500  
 Contour Interval 20 feet  
 1 2 3 Miles

Edition of Sept. 1893, reprinted 1932  
 Polyconic projection

WIS  
 DELAVAN

Lake Geneva

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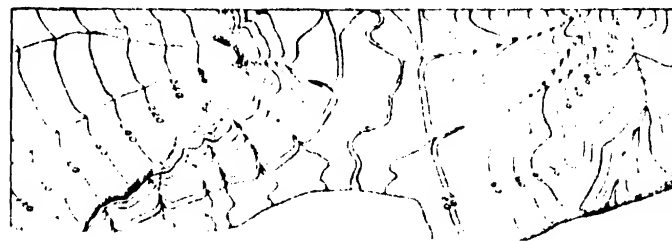
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The manner in which contour lines express altitude, form, and grade is shown in the figure below.



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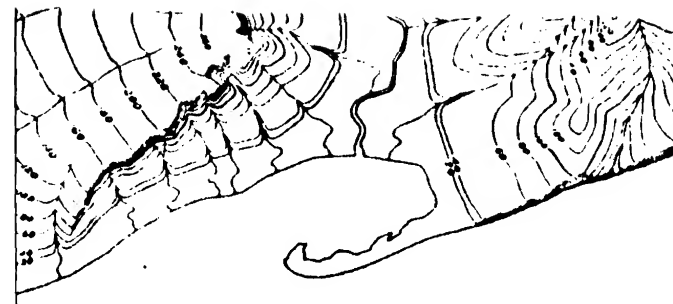
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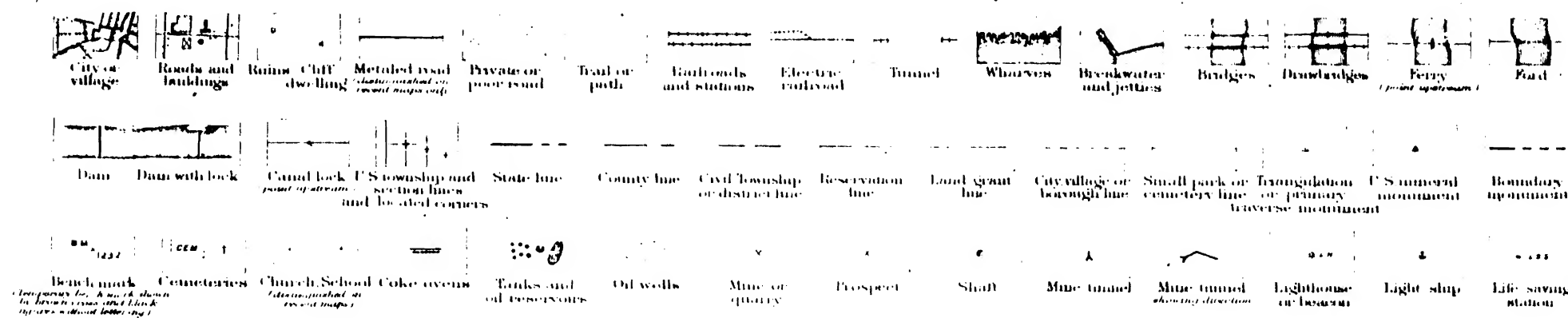
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THE DIRECTOR,  
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January, 1924.

## CONVENTIONAL SIGNS

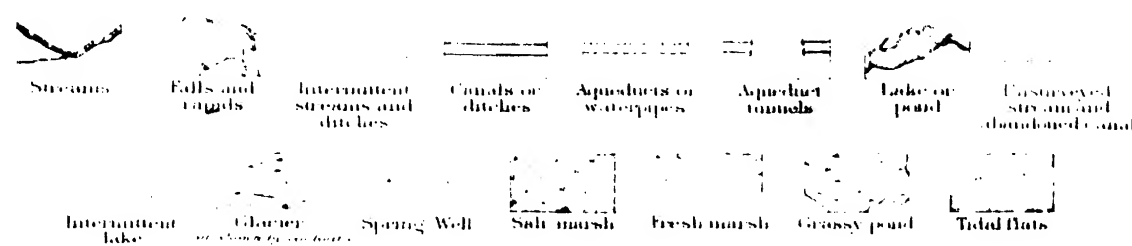
### CULTURE (printed in black)



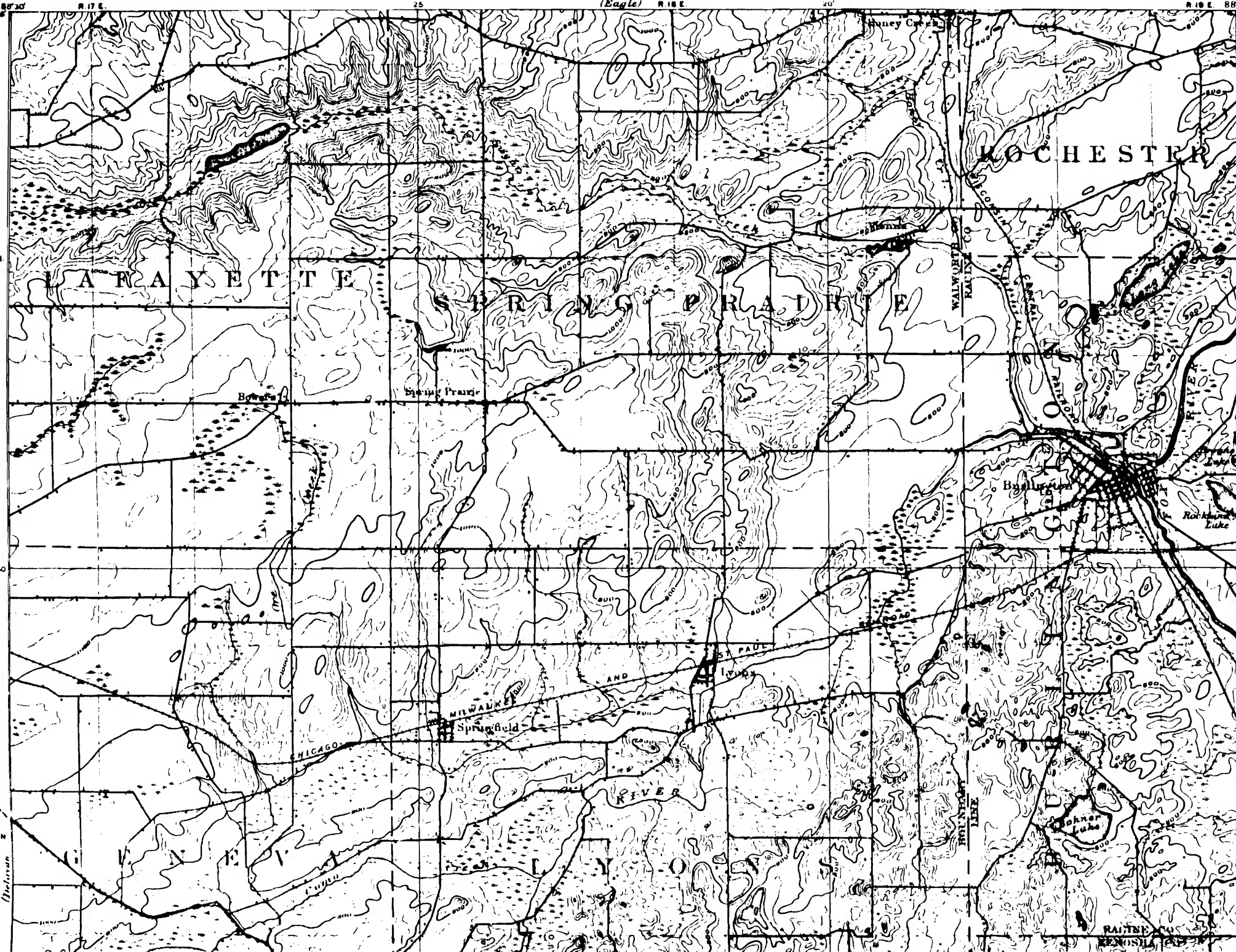
### RELIEF (printed in brown)



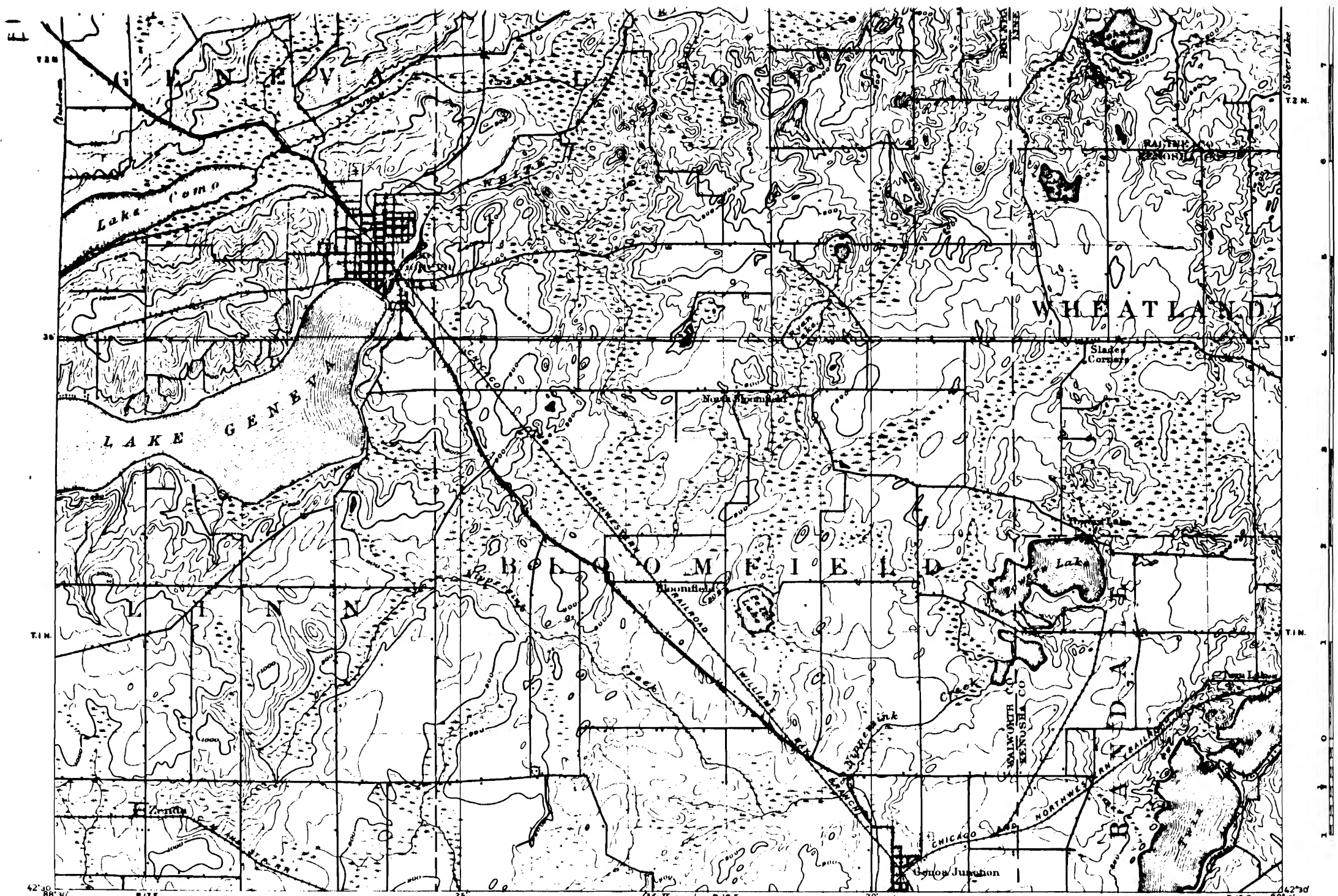
### WATER (printed in blue)



### WOODS (when shown, printed in green)







Henry Gannett, Chief Topographer.  
 J. H. Renshaw, Geographer in charge.  
 Triangulation by U. S. Coast and Geodetic Survey.  
 Topography by Van H. Manning, Jr.  
 Surveyed in 1891.  
 Revised in 1904 under direction of H. M. Wilson, Geographer.  
 Robert Muldrow, in charge of section, by Basil Duke.

APPROXIMATE MEAN  
 DEPRESSION 1904.

Scale 1:50,000  
 Contour interval 20 feet  
 Datum is mean sea level

Edition of 1906, reprinted 1927  
 Polyconic projection.

LAKE GENEVA, WIS.

#6

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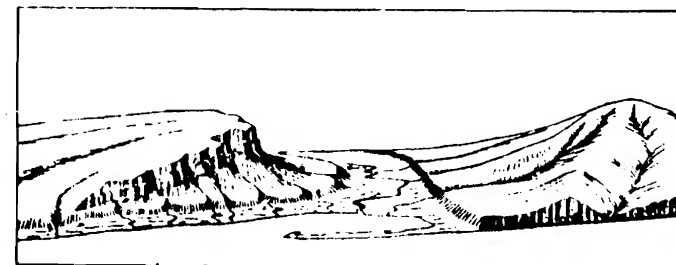
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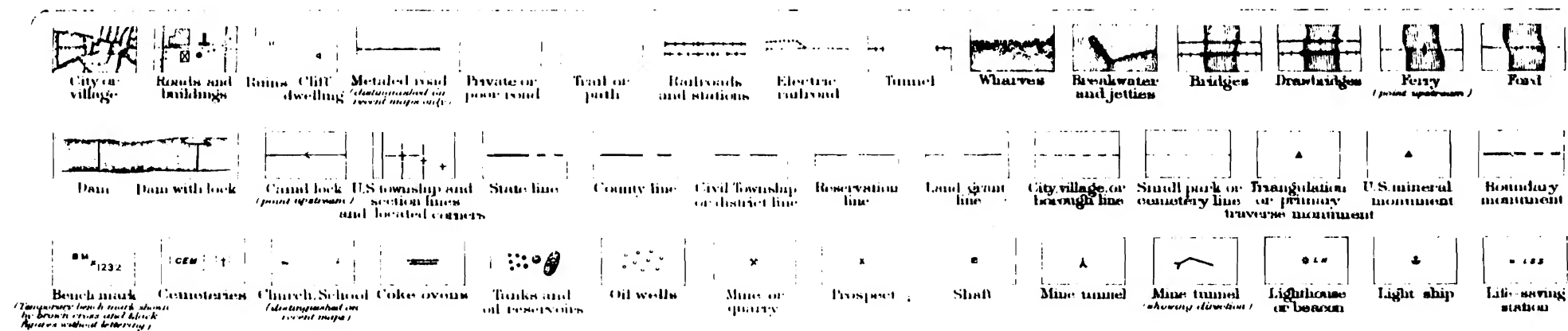
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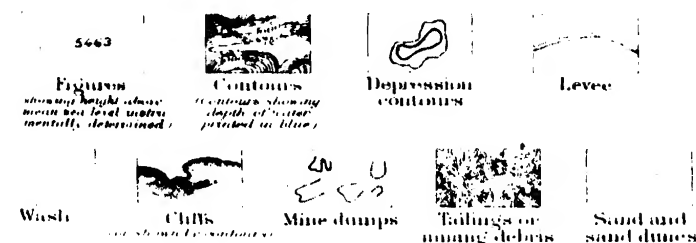
January, 1924.

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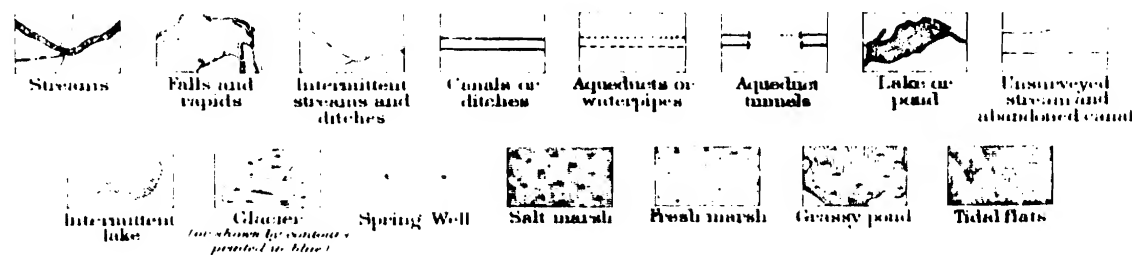
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



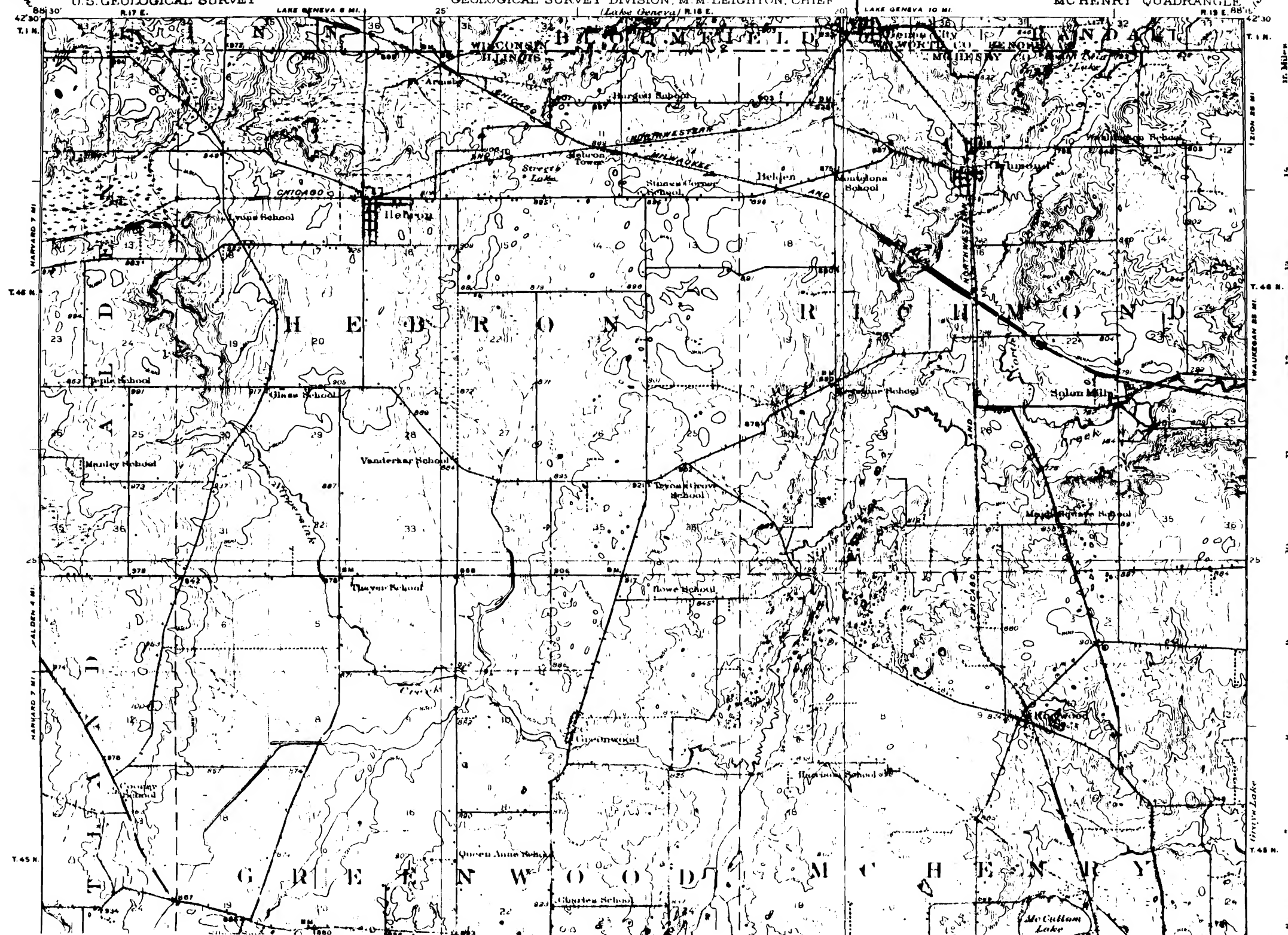
### WOODS (when shown, printed in green)



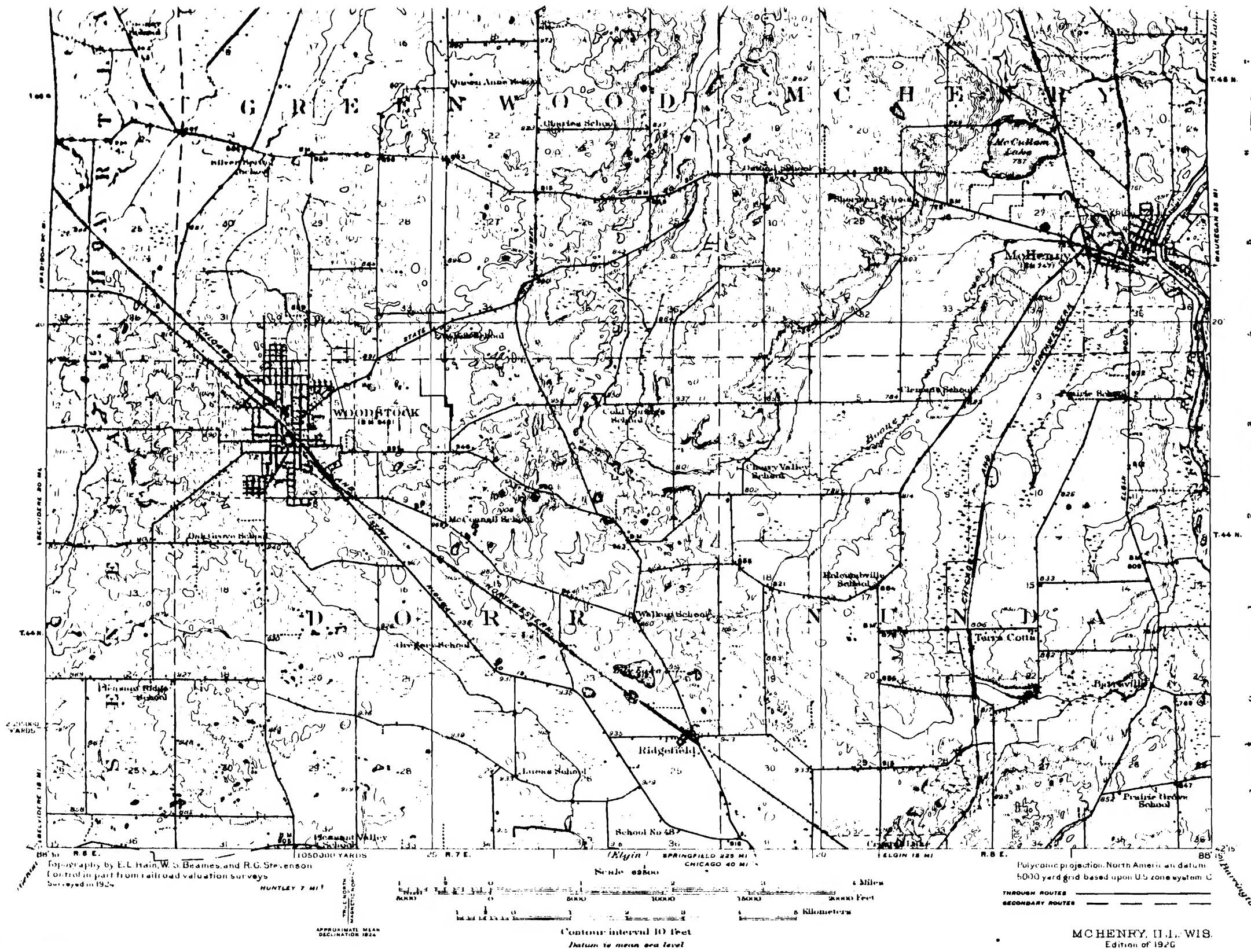
DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF ILLINOIS  
DEPARTMENT OF REGISTRATION AND EDUCATION  
A. M. SHELTON, DIRECTOR  
GEOLOGICAL SURVEY DIVISION, M. M. LEIGHTON, CHIEF

ILLINOIS - WISCONSIN  
MCHENRY QUADRANGLE







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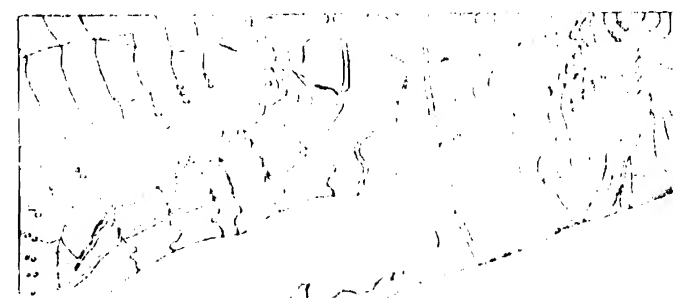
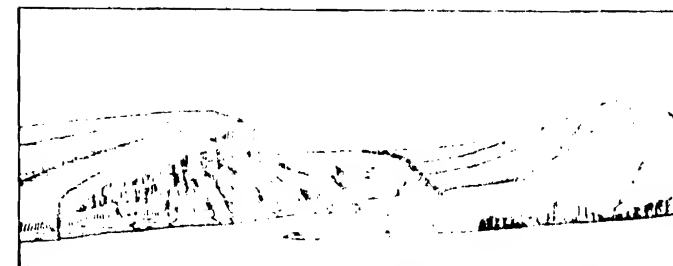
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The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

Index maps of each State and of Alaska and Hawaii, showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 10 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios cost \$1.00, 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by

region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch = nearly 2 miles, with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{100,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups: (1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping

the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

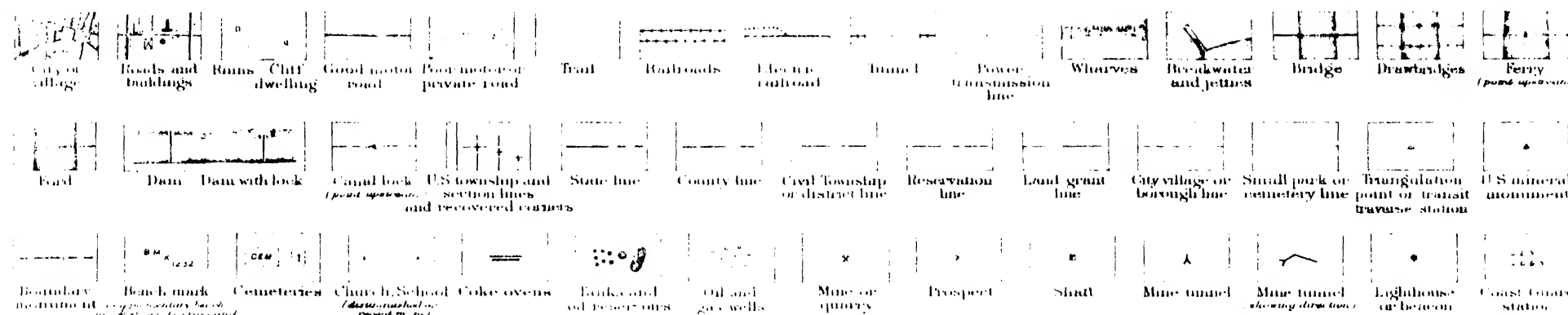
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

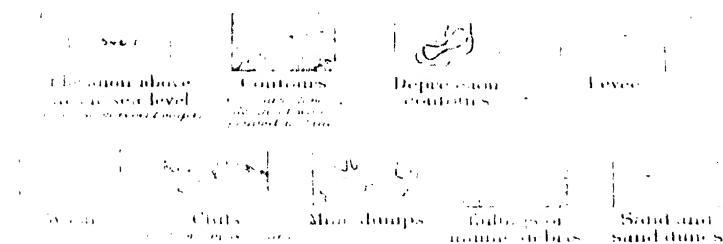
September, 1928.

## STANDARD SYMBOLS

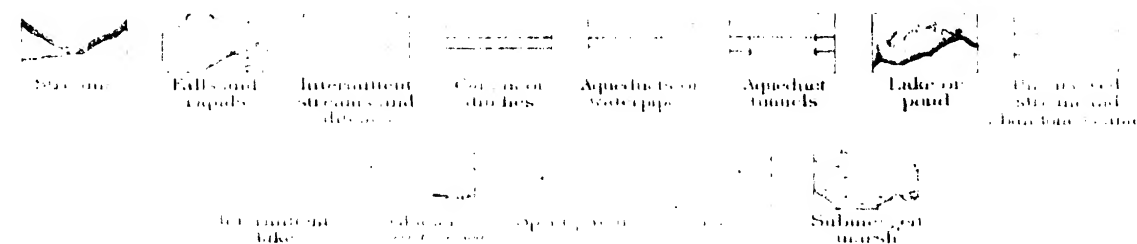
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



### WOODS (when shown, printed in green)



DEPARTMENT OF THE INTERIOR  
U S GEOLOGICAL SURVEY

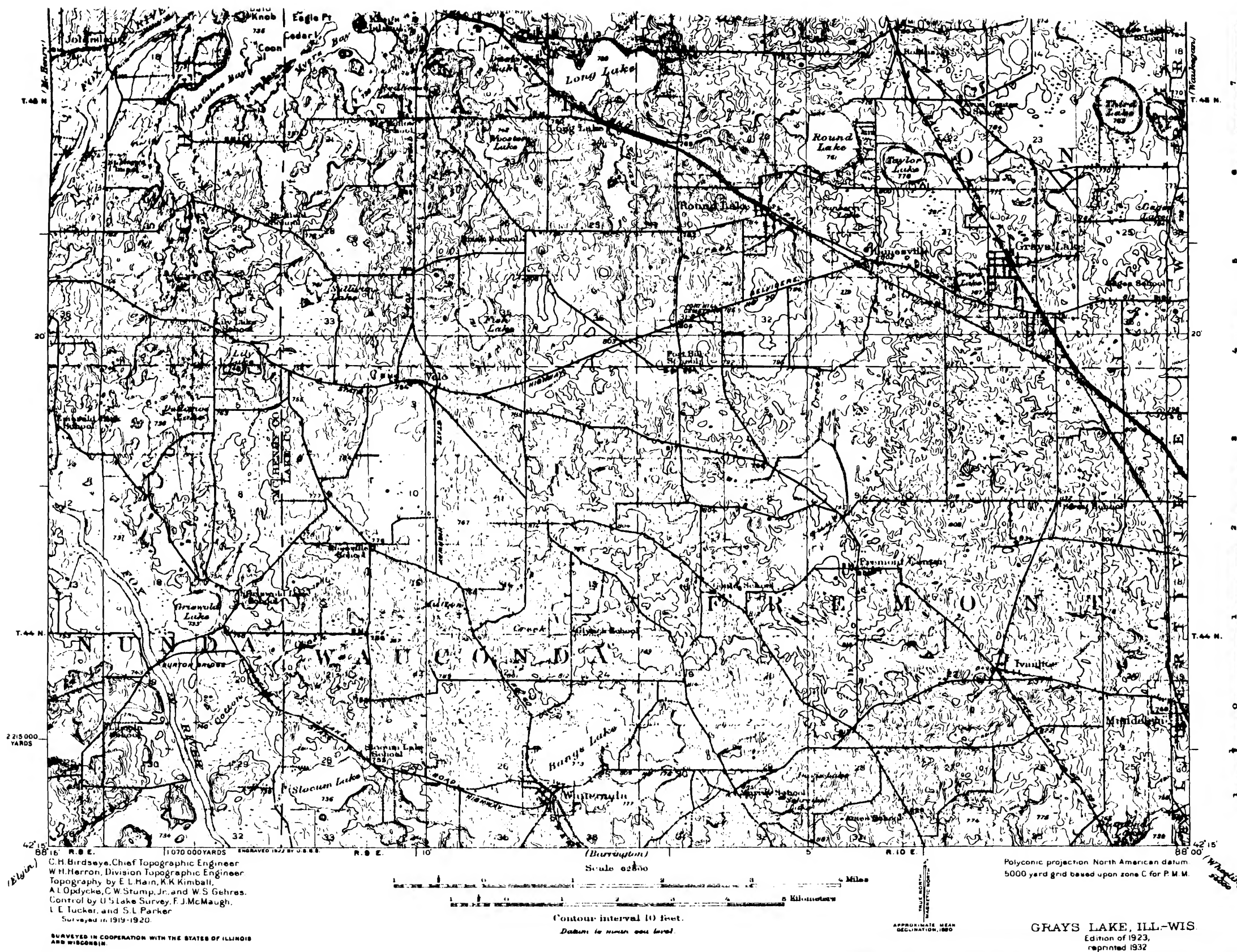
STATE OF ILLINOIS  
DEPARTMENT OF REGISTRATION AND EDUCATION  
M F WALSH, DIRECTOR  
GEOLOGICAL SURVEY DIVISION, M M LEIGHTON, CHIEF, URBANA ILLINOIS

STATE OF WISCONSIN  
REPRESENTED BY THE  
STATE GEOLOGIST

ILLINOIS - WISCONSIN  
GRAYS LAKE QUADRANGLE







C. H. Birdseye, Chief Topographic Engineer  
W. H. Herron, Division Topographic Engineer  
Topography by E. L. Main, K. K. Kimball,  
A. I. Opdycke, C. W. Stump, Jr., and W. S. Gehres.  
Control by U.S. Lake Survey, F. J. McMaugh,  
L. E. Tucker, and S. L. Parker.  
Surveyed in 1919-1920.

Scale 62500  
Contour interval 10 feet.  
Datum to mean sea level.

Polyconic projection North American datum  
5000 yard grid based upon zone C for P. M. M.  
GRAYS LAKE, ILL.-WIS  
Edition of 1923,  
reprinted 1932

#4

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

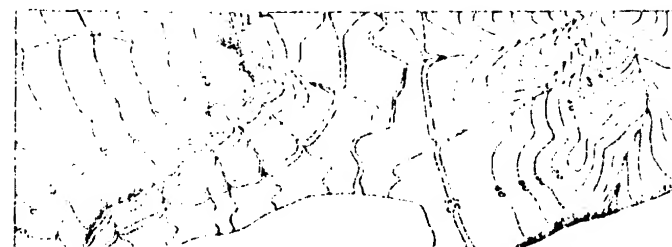
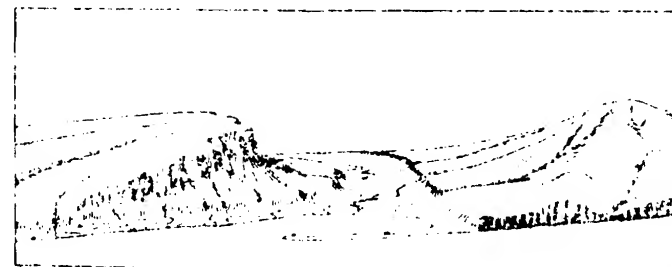
A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$ , or about 10 miles to an

boundary. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metalled roads are shown by double lines, one of which is accentuated. Other public roads are shown by line double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,000 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 200 folios have been published.

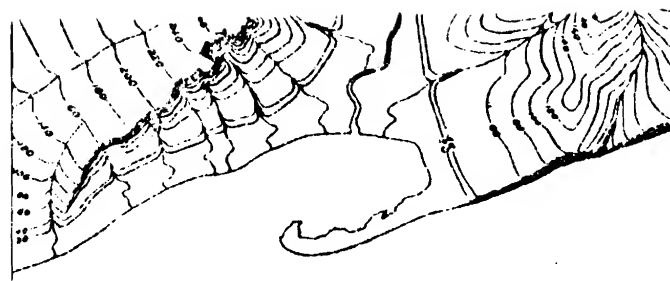
Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending

1 inch = 1 mile, with a contour interval of 20 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{500,000}$  but about 4,000 square miles has been mapped on a scale of  $\frac{1}{1,000,000}$ .

About half of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{250,000}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at

ished by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

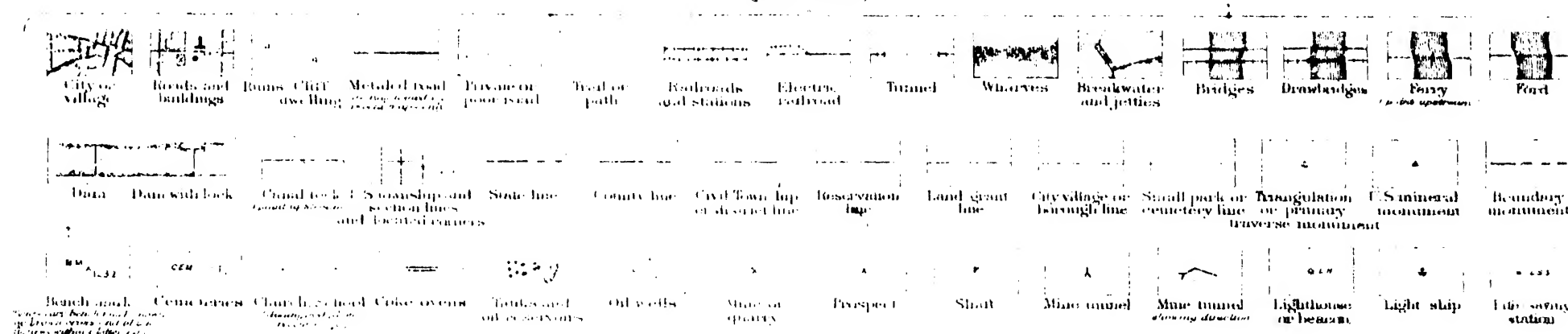
Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

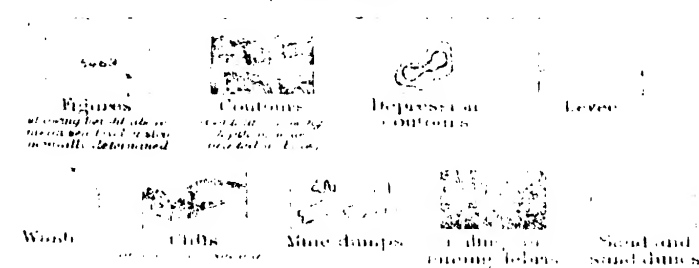
January, 1924.

## CONVENTIONAL SIGNS

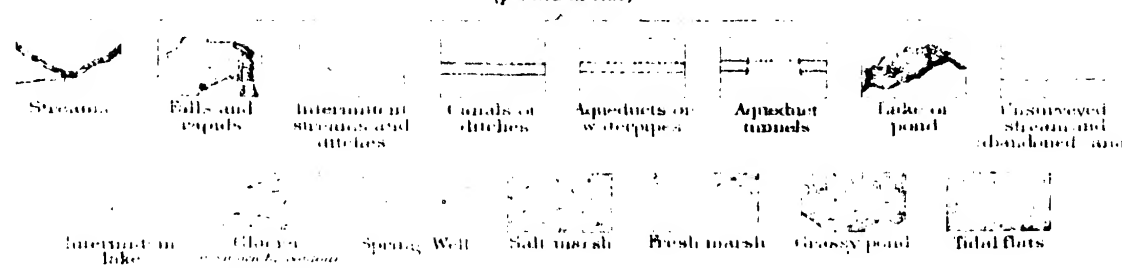
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

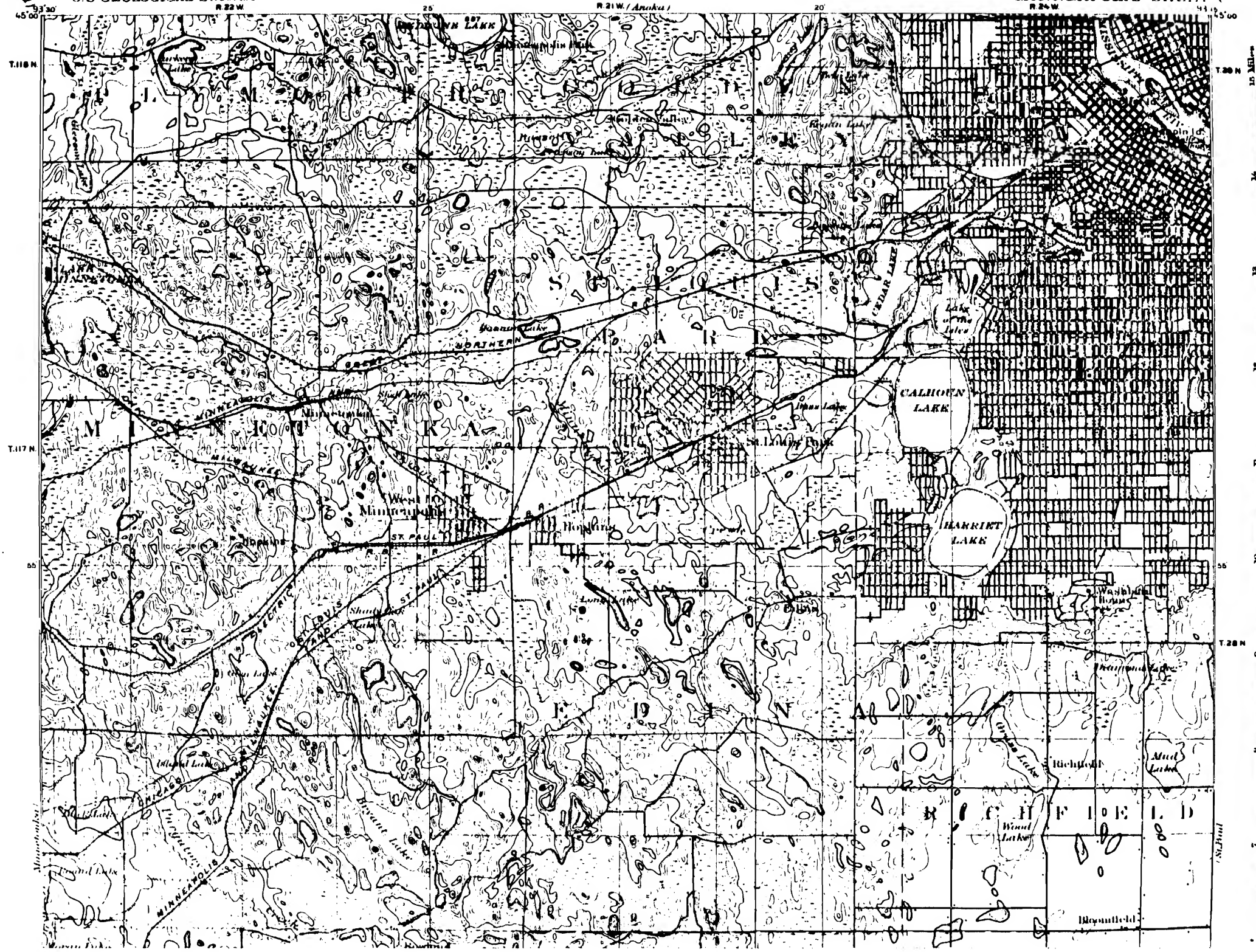


### WOODS (taken from air, printed in green)

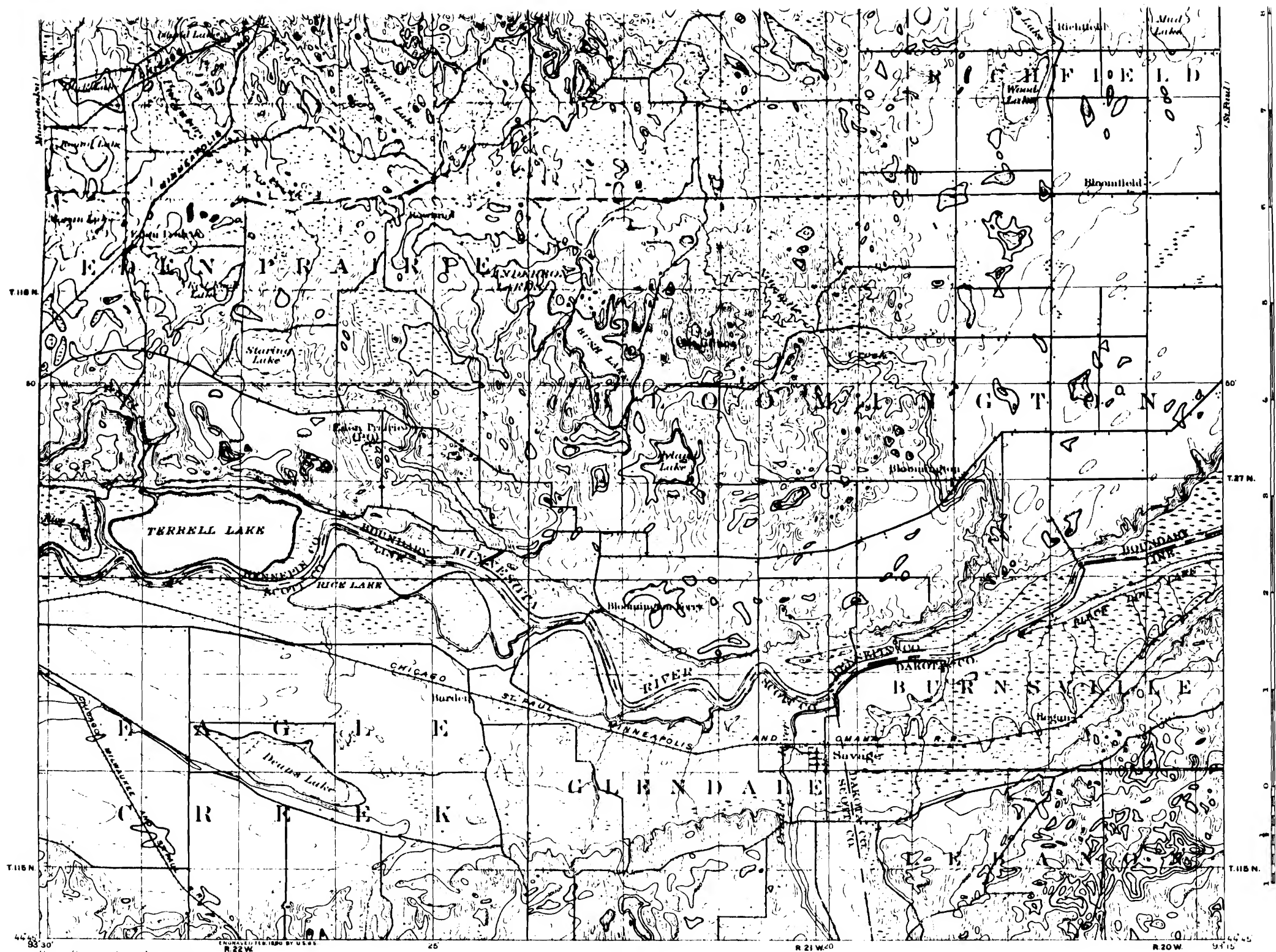


DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY  
R 22 W

MINNESOTA  
MINNEAPOLIS SHEET  
R 24 W







Henry Gannett, Chief Topographer.  
 Jno. H. Renshaw, Topographer in charge.  
 Triangulation by U.S. Coast and Geodetic Survey.  
 Topography by H.L. Baldwin Jr.  
 Surveyed in 1894.

Scale: 1 inch = 1 mile  
 0 1 2 3 4 5 Miles  
 0 1 2 3 4 5 Kilometers  
 Contour interval 20 feet.  
 Datum is mean sea level.

Edition of Oct. 1901, reprinted 1928.  
 Polyconic projection. To place on North  
 American datum move projection lines  
 100 feet south and 650 feet east.

MINNEAPOLIS, MINN.

677

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a topographic atlas of the United States. This work has been in progress since 1882, and more than 38 per cent of the area of the country, excluding outlying possessions, has now been mapped. The areas mapped are widely distributed, every State being represented, as shown on the progress maps accompanying each annual report of the Director.

This atlas is being published in sheets of convenient size, about 16½ by 20 inches. The four-sided area of land represented on an atlas sheet is bounded by parallels and meridians and is called a *quadrangle*. The quadrangles mapped cover 1° of latitude by 1° of longitude, 30' of latitude by 30' of longitude, 15' of latitude by 15' of longitude, or smaller areas, the size of the area mapped depending on the scale used. Several scales are employed. The smallest scale, that used for quadrangles covering 1°, is 1:250,000, or very nearly 4 miles to an inch—that is, 4 linear miles on the ground is represented by 1 linear inch on the map. This scale is used for maps of the desert regions and some other parts of the far West. For the greater part of the country, which is mapped by quadrangles covering 30', a larger scale, 1:125,000, or about 2 miles to an inch, is employed. A still larger scale, 1:62,500, or about a mile to an inch, is used for quadrangles covering 15', the map selected for mapping thickly settled or industrially important areas. A fourth scale, 1:31,250, or one-half mile to an inch, is employed for maps that are to be used in connection with irrigation or drainage, and a few maps of mining districts are published on still larger scales.

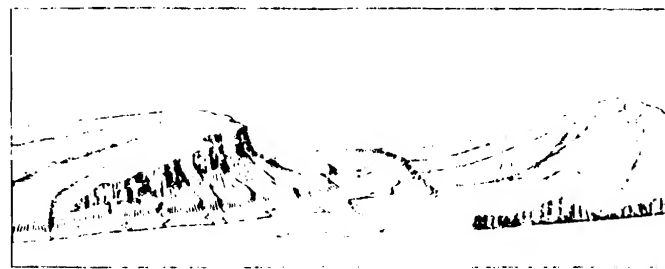
A topographic survey of Alaska has been in progress since 1908; nearly 30 per cent of its entire area has now been mapped. One-third of the area mapped, or 10 per cent of the Territory, has been covered only by reconnaissance work; the rest of it, which has been mapped on a scale of about 10 miles to an inch. The maps of nearly all the remaining two-thirds of the surveyed area have been published on a scale of 1:250,000, or about 4 miles to an inch. These maps are large, each representing 2° of latitude by 1° of longitude. A few areas that are of economic importance, aggregating about 50,000 square miles, have been surveyed in greater detail and mapped on a scale of 1:62,500, or about a mile to an inch.

A survey of the Hawaiian Islands was begun in 1910 and

All water features are printed in *blue*, the smaller streams and canals in full blue lines and the larger streams, lakes, and the sea in blue water-lining. Intermittent streams—those whose beds are dry at least three months in the year—are shown by lines of dots and dashes.

Relief is shown by contour lines in *brown*. A contour on the ground passes through points that have the same altitude. One who follows a contour will go neither uphill nor downhill but on a level. The contour lines on the map show not only the shapes of the hills, mountains, and valleys but also their elevations. The line of the sea coast itself is a contour line, the datum or zero of elevation being ocean sea level. The contour at, say, 20 feet above sea level would be the shore line if the sea were to rise or the land to sink 20 feet. On a gentle slope this contour is far from the present coast; on a steep slope it is near the coast. Where successive contour lines are far apart on the map they indicate a gentle slope; where they are close together they indicate a steep slope; and where they run together in one line they indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



by a sea cliff. The hill on the left terminates abruptly at the valley in a steep scarp. It slopes gradually back away from the scarp and forms an inclined table-land, which is traversed by a few shallow gullies. On the map each of these features is indicated, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the character of the area mapped; in a flat country it may be as small as 5 feet; in a mountainous region it may be 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures stating elevation above sea level. The heights of many points, such as road corners, summits, surfaces of lakes, and bench marks, are also given on the map in figures, which express the elevations to the nearest foot only. More exact elevations of bench marks, as well as geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey. A bulletin pertaining to any State may be had on application.

The works of man are shown in *black*, in which color all lettering also is printed. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public and through roads are shown by fine double lines, private and poor roads by dashed double lines; trails by dashed single lines.

Each quadrangle mapped for the topographic atlas is designated by the name of a principal town or of some prominent natural feature within the quadrangle, and on the margins of the maps are printed the names of adjoining quadrangles for which atlas sheets have been published or are in preparation. The sheets are sold at 10 cents each in lots of less than 50 copies or at 6 cents each in lots of 50 or more copies, whether of the same or of different sheets.

The topographic map is the base on which the geology and the mineral resources of a quadrangle are represented, the maps showing these features being bound together, with a description of the quadrangle, to form a folio of the Geologic Atlas of the United States. Circulars showing by index maps the published topographic atlas sheets and geologic folios covering

results of which have been mapped on a scale of about 10 miles to an inch. The maps of nearly all the remaining two-thirds of the surveyed area have been published on a scale of 1:250,000, or about 4 miles to an inch. These maps are large, each representing 2° of latitude by 4° of longitude. A few areas that are of economic importance, aggregating about 3,000 square miles, have been surveyed in greater detail and mapped on a scale of 1:62,500, or about a mile to an inch.

A survey of the Hawaiian Islands was begun in 1910 and the resulting maps are being published on a scale of 1:62,500.

The features shown on these atlas sheets or maps may be classed in three groups—(1) *water*, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) *relief*, including mountains, hills, valleys, and other elevations and depressions; (3) *culture* (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used for these features are shown below, with explanations. Variations appear on some earlier maps.



The sketch represents a river valley between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends.

The sheets are sold at 10 cents each in lots of less than 50 copies or at 6 cents each in lots of 50 or more copies, whether of the same or of different sheets.

The topographic map is the base on which the geology and the mineral resources of a quadrangle are represented, the maps showing these features being bound together, with a description of the quadrangle, to form a folio of the Geologic Atlas of the United States. Circulars showing by index maps the published topographic atlas sheets and geologic folios covering any State or region will be sent free on application.

Applications for maps or folios should be accompanied by cash—the exact amount—or by post-office money order (not postage stamps), and should be addressed to—

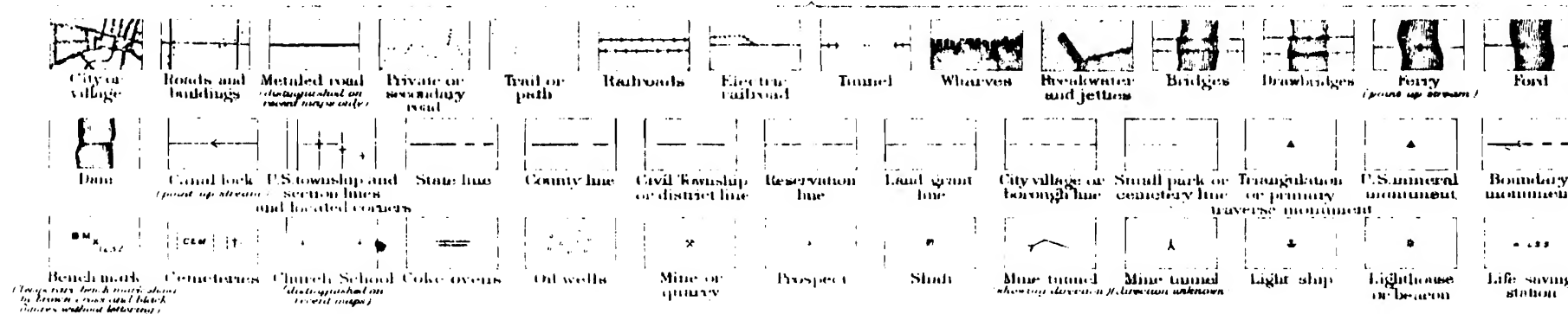
THE DIRECTOR,

United States Geological Survey,  
Washington, D. C.

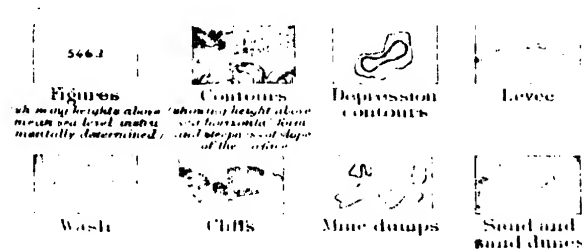
January, 1915.

## CONVENTIONAL SIGNS

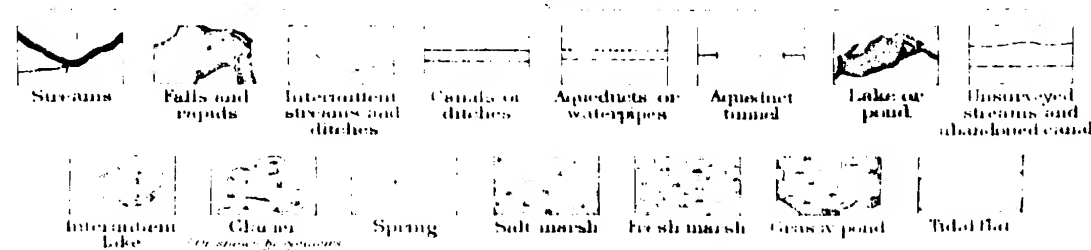
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

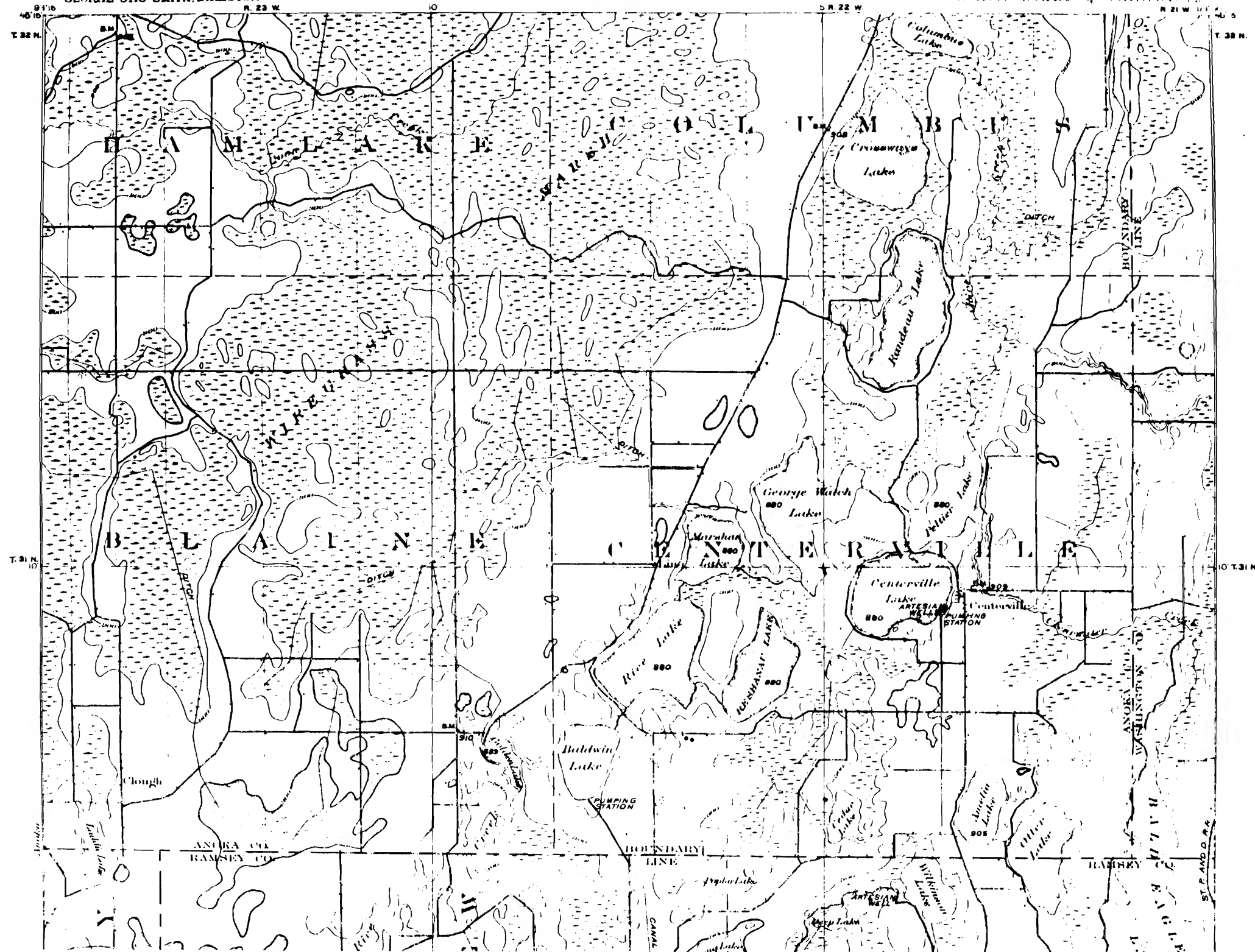


### WOODS (when shown, printed in green)

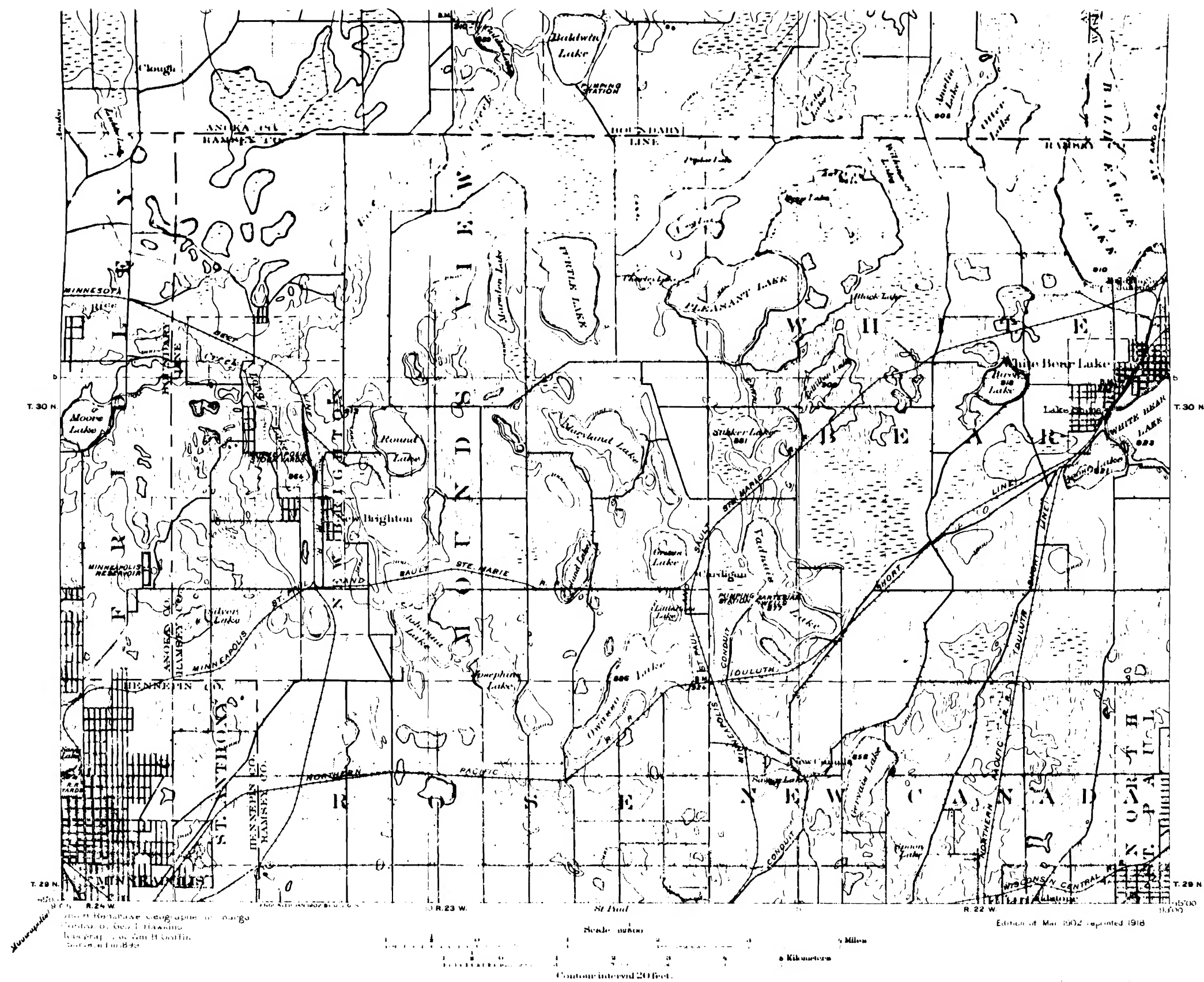
DEPARTMENT OF THE INTERIOR  
FRANKLIN K. LANE, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

# TOPOGRAPHY

MINNESOTA  
WHITE BEAR QUADRANGLE







## DESCRIPTION OF THE TOPOGRAPHIC MAP OF THE UNITED STATES

The United States Geological Survey is making a topographic map of the United States. This work has been in progress since 1882, and more than one-third of the area of the country, excluding outlying possessions, has been mapped. The mapped areas are widely scattered, nearly every State being represented, as shown on the progress maps accompanying each annual report of the Director.

This great map is being published in atlas sheets of convenient size, which are bounded by parallels and meridians. The four-cornered division of land corresponding to an atlas sheet is called a *quadrangle*. The sheets are of approximately the same size: the paper dimensions are 20 by 16½ inches; the map occupies about 17½ inches of height and 11½ to 16 inches of width, the latter varying with latitude. Three scales, however, are employed. The largest scale is 1:62,500, or very nearly one mile to one inch; i. e., one linear mile on the ground is represented by one linear inch on the map. This scale is used for the thickly settled or industrially important parts of the country. For the greater part of the country an intermediate scale of 1:125,000, or about two miles to one inch, is employed. A third and still smaller scale of 1:250,000, or about four miles to one inch, has been used in the desert regions of the far West. A few special maps on larger scales are made of limited areas in mining districts. The sheets on the largest scale cover 16' of latitude by 16' of longitude; those on the intermediate scale, 30' of latitude by 30' of longitude; and those on the smallest scale, 1" of latitude by 1" of longitude.

The features shown on the map may, for convenience, be classed in three groups: (1) *natural*, including seas, lakes, ponds, rivers, and other streams, canals, swamps, and other water features; (2) *relief*, including mountains, hills, valleys, cliffs, etc.; (3) *cultural*, i. e., works of man, such as towns, cities, roads, railroads, boundaries, etc. The conventional signs used for these features are grouped below. Various

times, are shown, not by full lines, but by lines of dots and dashes. Ponds which are dry during a part of the year are shown by oblique parallel lines. Salt-water marshes are shown by horizontal ruling interspersed with tufts of blue, and fresh-water marshes and swamps by blue tufts with broken horizontal lines.

Relief is shown by contour lines in brown. Each contour passes through points which have the same altitude. One who follows a contour on the ground will go neither uphill nor downhill, but on a level. By the use of contours not only are the shapes of the plains, hills, and mountains shown, but also the elevations. The line of the seacoast itself is a contour line, the datum or zero of elevation being mean sea level. The contour line at, say, 20 feet above sea level is the line that would be the seacoast if the sea were to rise or the land to sink 20 feet. Such a line runs back into the valleys and forward around the points of hills and spurs. On a gentle slope this contour line is far from the present coast line, while on a steep slope it is near it. Thus a succession of these contour lines far apart on the map indicates a gentle slope; if close together, a steep slope; and if the contours run together in one line, as if each were vertically under the one above it, they indicate a cliff. In many parts of the country are depressions or hollows with no outlets. The contours on either side surround these, just as they surround hills. These small hollows known as sinks are usually indicated by hachures, or short dashes, on the inside of the curve. The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval varies according to the character of the area mapped; in a flat country it may be as small as 10 feet; in a mountainous region it may be 200 feet. Certain contours, usually every fifth one, are accompanied by figures stating elevation above sea level. The height of a point definitely ascertained

their descriptions, as well as the descriptions and geodetic coordinates of triangulation stations, are published in the annual reports and bulletins of the Survey. The publications pertaining to specified localities may be had on application.

The works of man are shown in black, in which color all lettering also is printed. Boundaries, such as State, county, city, land-grant, reservation, etc., are shown by broken lines of different kinds and weights. Houses are shown by small black squares which in the densely built portions of cities and towns merge into blocks. Roads are shown by line double lines (full for the better roads, dotted for the inferior ones), trails by single dotted lines, and railroads by full black lines with cross lines. Other cultural features are represented by conventions which are easily understood.

The sheets composing the topographic atlas are designated by the name of a principal town or of some prominent natural feature within the quadrangle and the names of adjoining published sheets are printed on the margins. They are sold at five cents each when fewer than 100 copies are purchased, but when ordered in lots of 100 or more copies, whether of the same or of different sheets, the price is three cents each.

The topographic map is the base on which the facts of geology and the mineral resources of a quadrangle are represented. The topographic and geologic maps of a quadrangle are finally bound together, accompanied by a description of the district, to form a volume of the Geologic Atlas of the United States. The volumes are sold at twenty-five cents each, excepting that such as are unusually comprehensive are priced exceptionally.

Applications for the separate topographic maps or for the volumes of the Geologic Atlas should be accompanied by cash or the correct amount, or by post office money order, and should be addressed to:

The price is now 10 cents each or 6 cents a copy in lots of 100 or more.

The features shown on this map may, for convenience, be classed in three groups: (1) *water*, including seas, lakes, ponds, rivers and other streams, canals, swamps, etc.; (2) *relief*, including mountains, hills, valleys, cliffs, etc.; (3) *culture*, i. e., works of man, such as towns, cities, roads, railroads, boundaries, etc. The conventional signs used for these features are grouped below. Variations appear in some maps of earlier dates.

All water features are shown in blue, the smaller streams and canals in full blue lines, and the larger streams, lakes, and the sea by blue water-lining. Certain streams, however, which flow during only a part of the year, their beds being dry at other

times in fact between one contour and the next, is stated at the bottom of each map. This interval varies according to the character of the area mapped; in a flat country it may be as small as 5 feet; in a mountainous region it may be 200 feet. Certain contours, usually every fifth one, are accompanied by figures stating elevation above sea level. The heights of many definite points, such as road corners, railroad crossings, railroad stations, summits, water surfaces, triangulation stations, and bench marks, are also given. The figures in each case are placed close to the point to which they apply, and express the elevation to the nearest foot only. The exact elevations of bench marks and

contour each, except in the case of bench marks, are printed on the map.

Applications for the separate topographic maps or for folios of the Geologic Atlas should be accompanied by cash—the exact amount—or by post-office money order, and should be addressed to—

THE DIRECTOR,

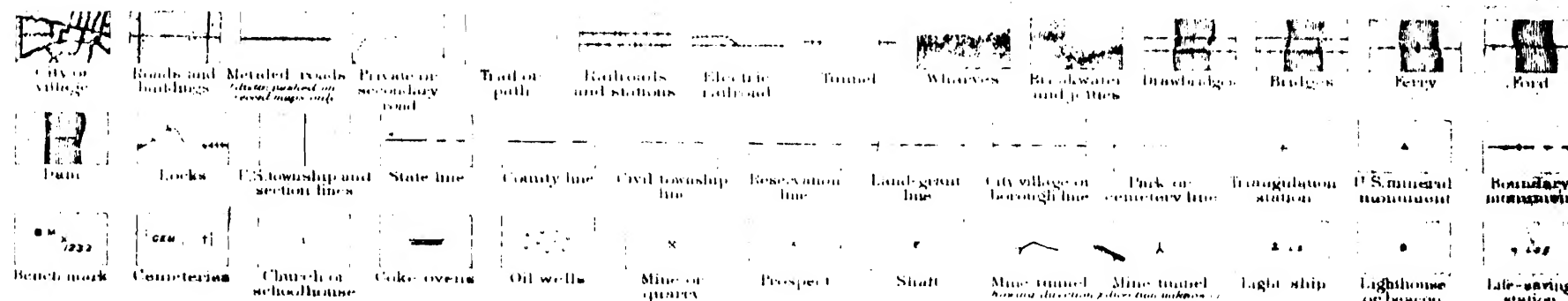
United States Geological Survey,

Washington, D. C.

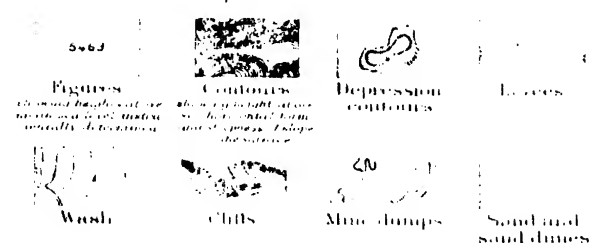
May, 1909.

## CONVENTIONAL SIGNS

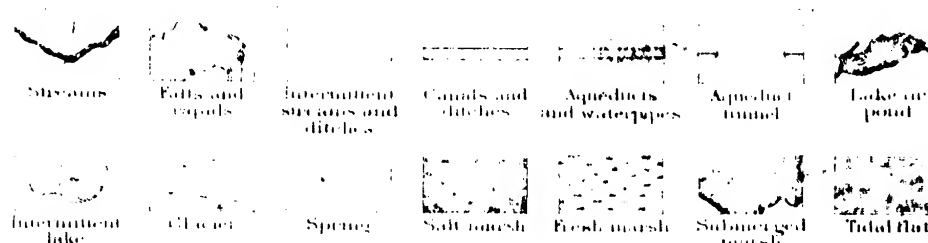
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

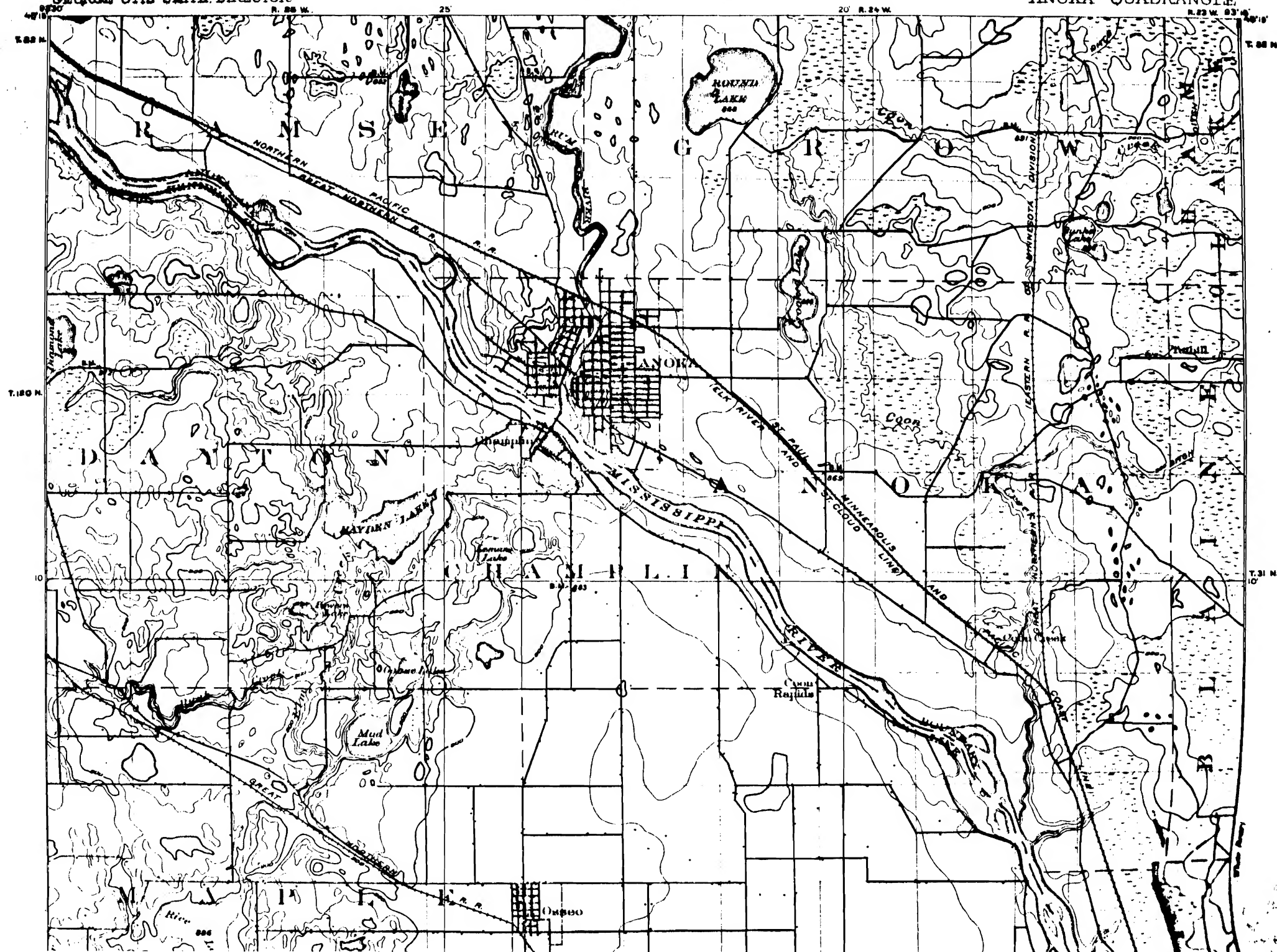


### WOODS (when shown, printed in green)

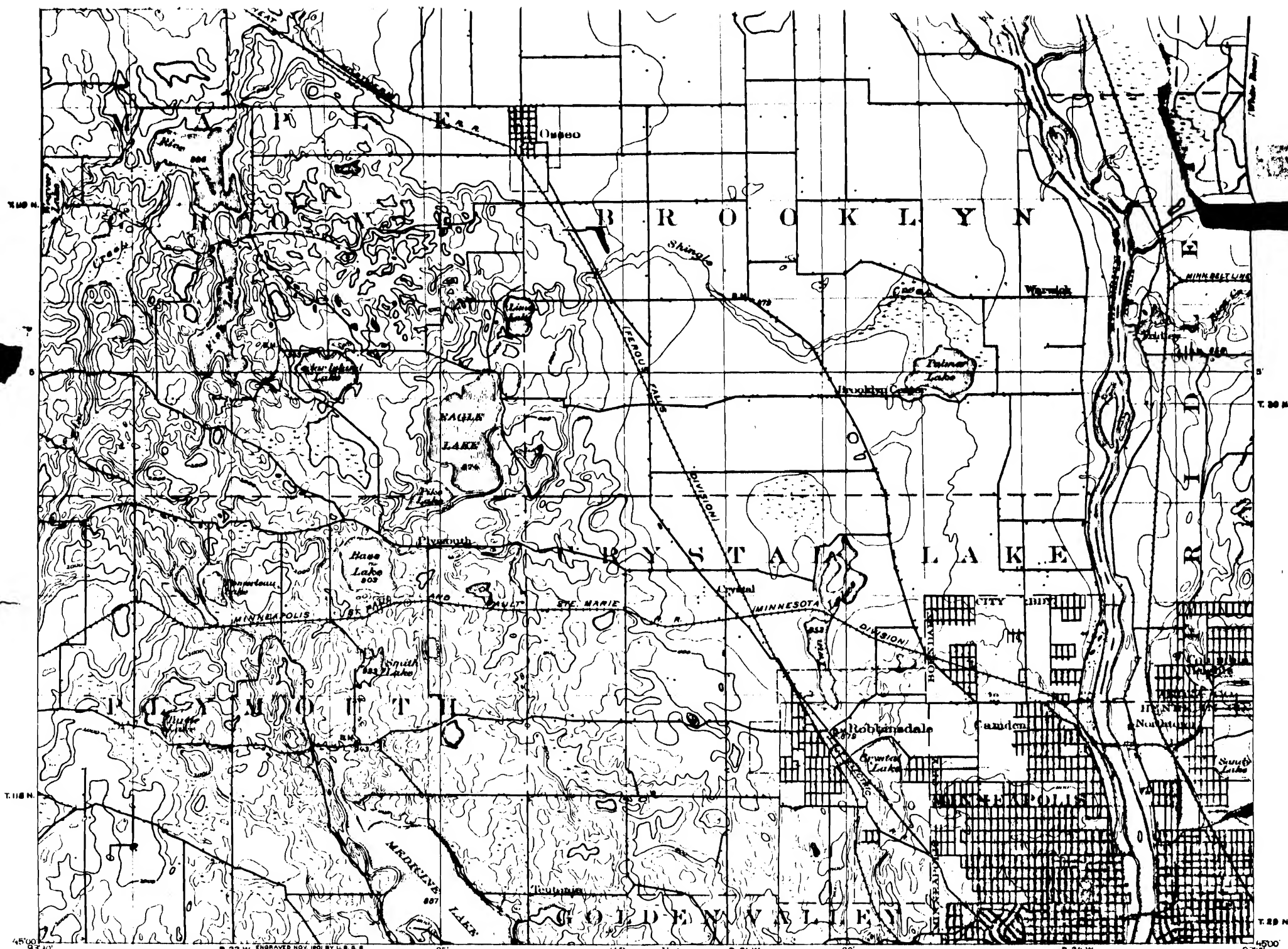
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

# TOPOGRAPHY

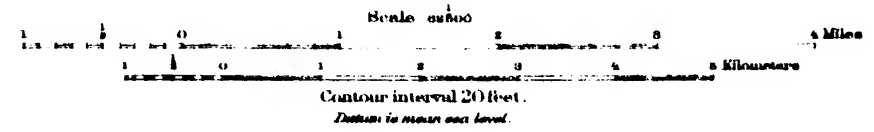
MINNESOTA  
ANOKA QUADRANGLE





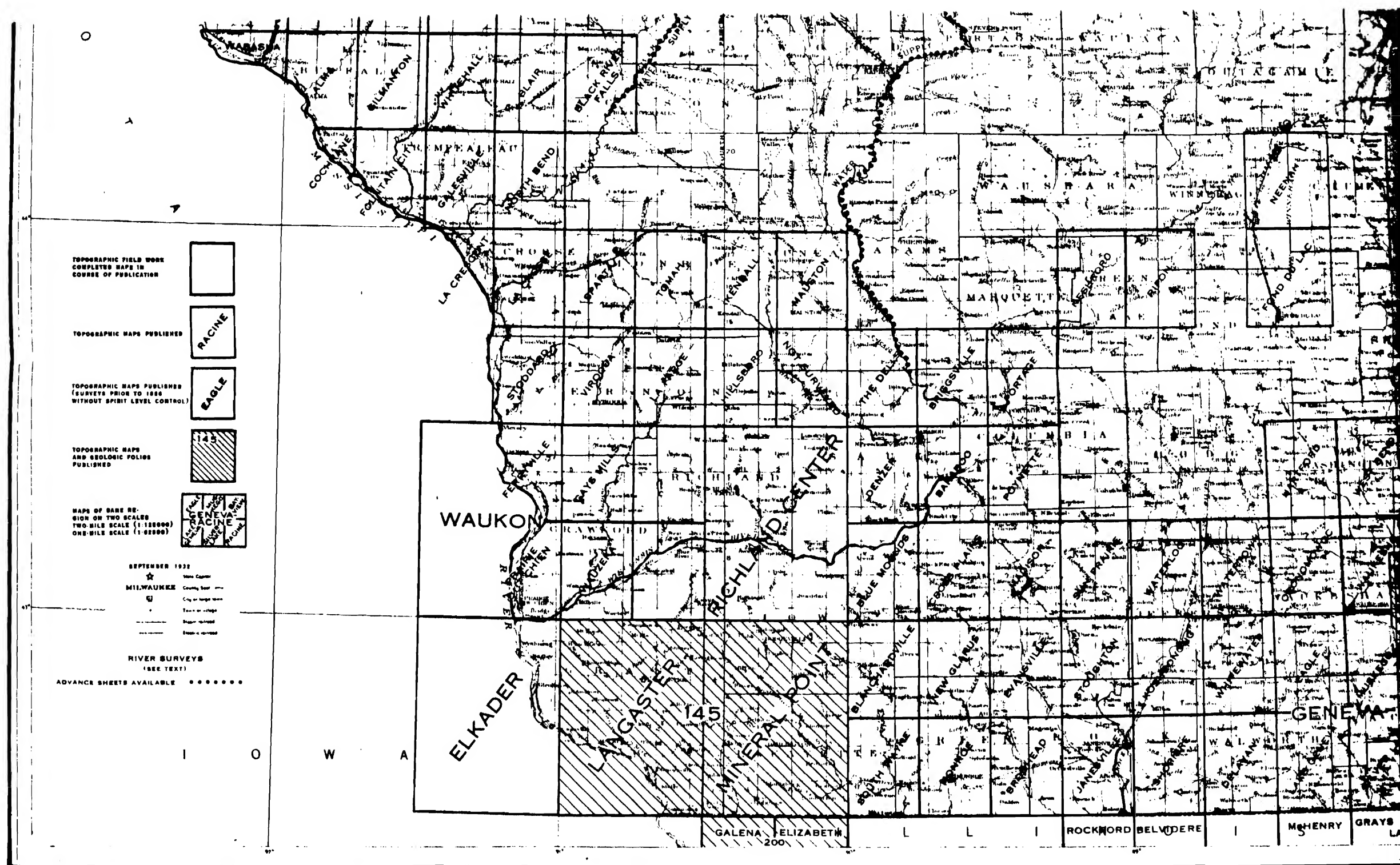


Jno. H. Kershaw, Geographer in charge  
Control by Geo. T. Hawkins  
Topography by Wm. H. Griffin  
Surveyed in 1893.



Edition of Mar. 1902, reprinted Mar. 1910.

ANOKA



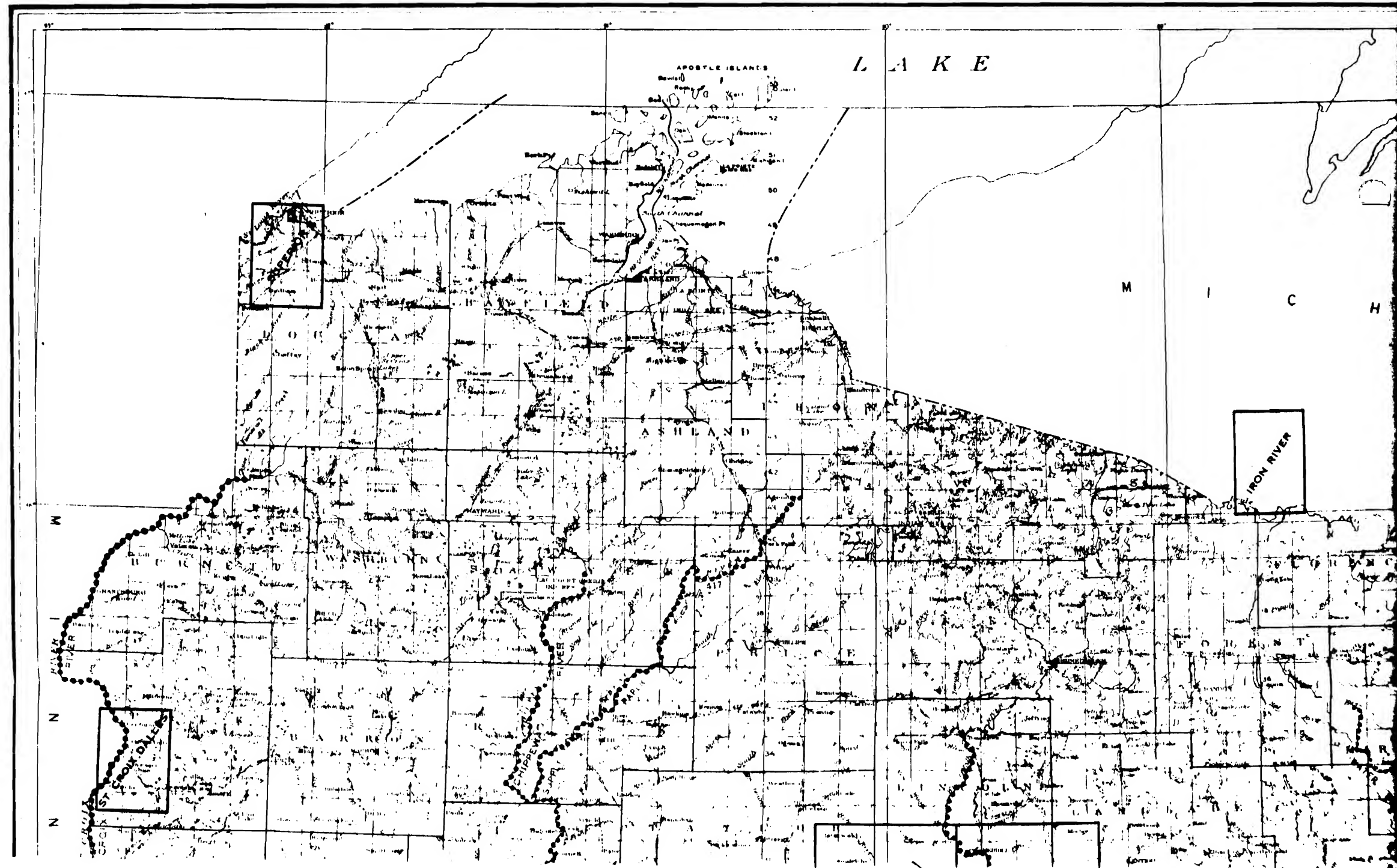
Scale 1000000





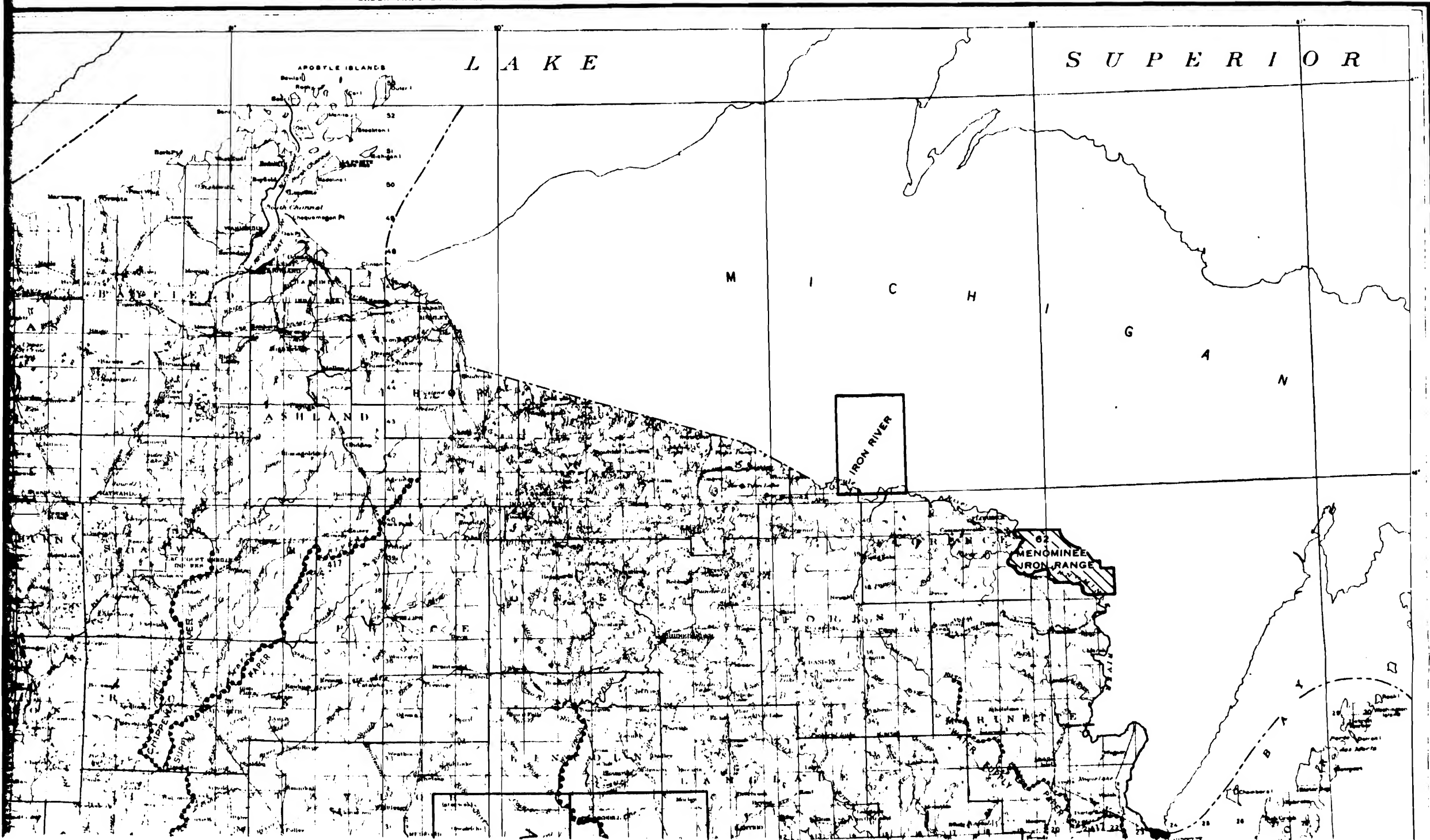
DEPARTMENT OF THE INTERIOR  
U. S. GEOLOGICAL SURVEY

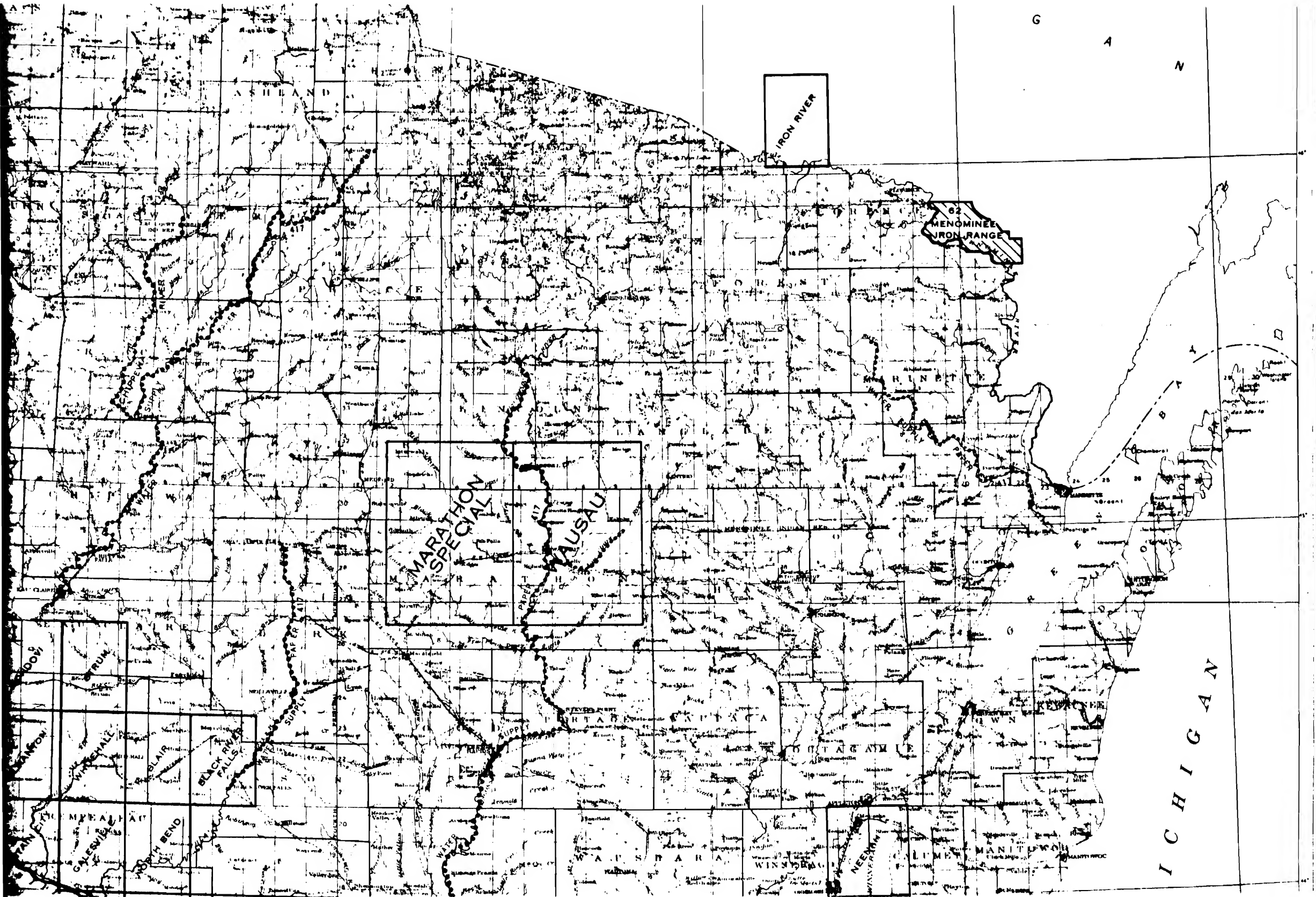
INDEX TO TOPOGRAPHIC MAPS AND GEOLOGIC FOLIOS  
ORDER MAPS BY NAMES PRINTED IN RED. NO OTHERS ARE PUBLISHED

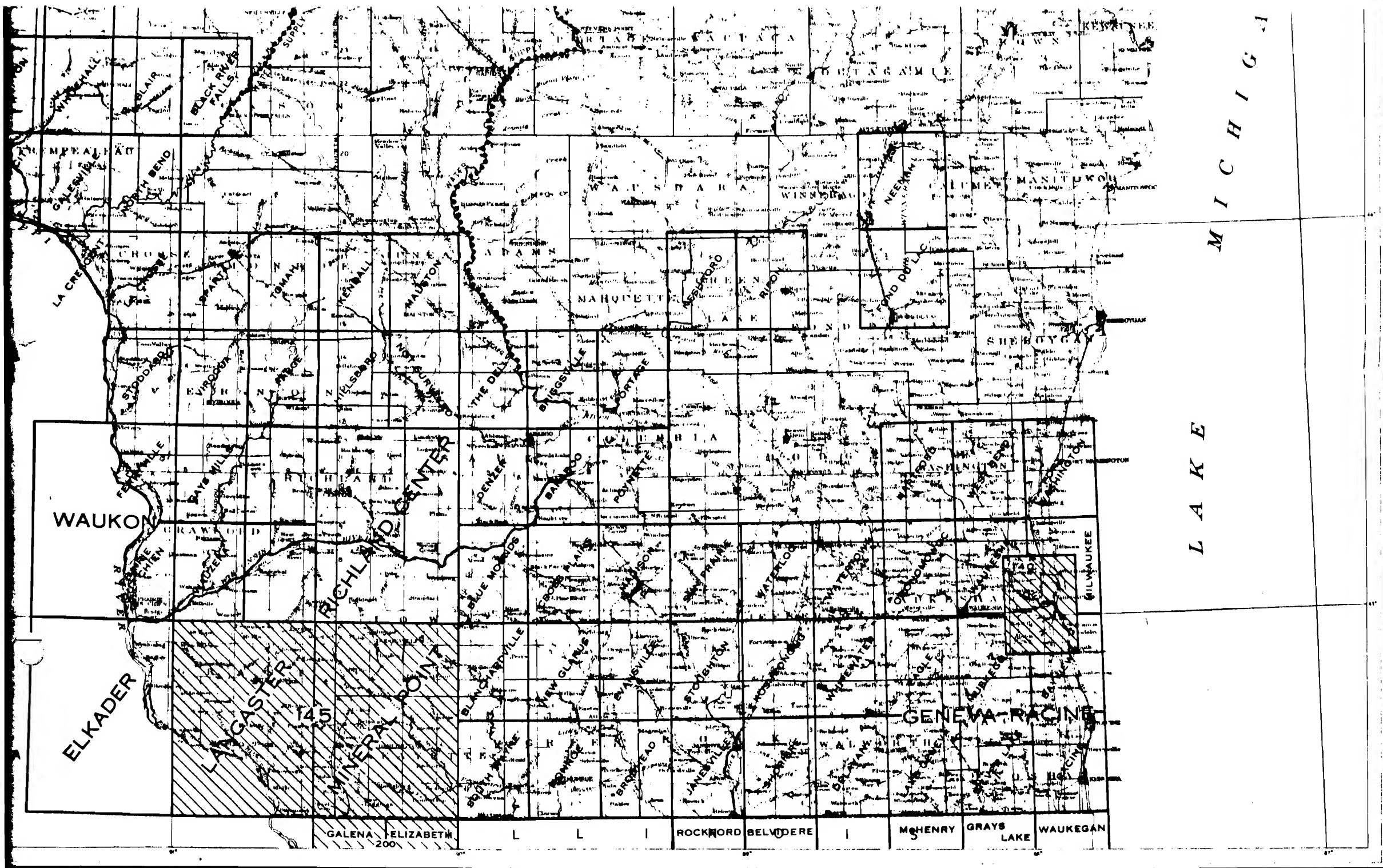




WISCONSIN







Scale 1:100,000  
 0 1 2 3 4 5 Miles  
 0 1 2 3 4 5 Kilometers

A MAP OF THE STATE OF WISCONSIN FOUR TIMES THE SIZE OF THIS INDEX AND WITHOUT THE RED OVERPRINT IS PUBLISHED AND FOR SALE BY THE UNITED STATES GEOLOGICAL SURVEY, PRICE 25 CENTS. ALSO THIS MAP WITHOUT OVERPRINT, PRICE 5 CENTS

M I C H I G A N  
 L A K E

## DEPARTMENT OF THE INTERIOR

## UNITED STATES GEOLOGICAL SURVEY

**Topographic maps.**—The United States Geological Survey is making a standard topographic atlas of the United States. The unit of survey is a quadrangle bounded by parallels of latitude and meridians of longitude, but different quadrangles are mapped on different scales, and consequently the standard maps, though of nearly uniform size (about 16½ by 20 inches), represent areas of different sizes. The standard scales are 1:31,680 (1 inch=one-half mile), 1:62,500 (1 inch=nearly 1 mile), and 1:125,000 (1 inch=nearly 2 miles). Some maps are published on special scales. Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. The maps are printed in three colors. The cultural features, such as roads, railroads, cities, and towns, as well as the lettering, are in black; the water features are in blue; and the features of relief—hills, mountains, etc.—are shown by brown contour lines. The contour interval differs according to the scale of the map and the relief of the country. On some maps woodland areas are shown in green and special features in other colors.

The progress of this work in Wisconsin is shown on the index map within. The surveys since 1915 have been made in cooperation with the State. Each of the rectangles outlined in red indicates a quadrangle of which a topographic survey has been made. The name of the resulting topographic map, if published, is also shown, and its scale is indicated by the size of the rectangle. Each of the maps represented by the smaller rectangles shows a quadrangle measuring 15' each way, or from 205 to 220 square miles, the area differing according to the latitude. The scale is 1:62,500, and the contour interval is either 10 or 20 feet. Each of the maps represented by the larger rectangles shows a quadrangle measuring 30' each way, or from 846 to 878 square miles. The scale is 1:125,000, and the contour interval is 20 feet. The whole number of published topographic maps covering quadrangles in Wisconsin is 79. A list of special maps and sheets is given on page 6.

The price of the standard maps is 10 cents each, but a discount of 40 per cent is allowed on an order amounting to \$5 at the retail price—that is, the wholesale rate for standard topographic maps is \$3 for 50. The discount is allowed on an order for maps alone, either of one kind or in any assortment, or for maps together with geologic folios. (See below.) Prices for maps other than the standard are given on page 4 of this circular. No discount will be allowed on an order amounting to less than \$3. Prepayment is required and may be made by money order, payable to the Director of the United States Geological Survey, or in cash—the exact amount—at sender's risk; postage stamps should not be sent.

If maps ordered are not in stock the right is reserved to substitute others rather than return very small sums of money by mail, unless directions to the contrary are given in the order. *Name of county should be included in post-office address.*

The Survey can not supply mounted maps.

**Geologic folios.**—Geologic maps of some of the areas shown on the topographic maps are being published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the country and its mineral products. The folios are of special interest to students of geography and geology and are valuable as guides in the development and utilization of mineral resources.

For Wisconsin two folios have been issued, as shown on the index map by the rectangles shaded red and numbered. Both are now out of print. A general circular on geologic folios may be had on application.

**World Atlas of Commercial Geology.**—The World Atlas of Commercial Geology has been compiled by the United States Geological Survey to help in directing both the industry and the commerce of the United States. Two parts have been published. Part I, Distribution of mineral production, gives the results of a study of the world's supply of essential minerals. Part I is out of print. Part II, Water power of the world, shows the world's potential water power and the extent to which it has been utilized at home and abroad. Price, \$1; in lots of 10 or more, 60 cents.

All correspondence should be addressed to

THE DIRECTOR,

UNITED STATES GEOLOGICAL SURVEY,

WASHINGTON, D. C.

September, 1932.



## SPECIAL MAPS AND SHEETS

[Measurements are approximate]

**Geneva-Racine, Wis.** This map is composed of the Bayview, Eagle, Lake Geneva, Muskego, Racine, and Silver Lake maps combined and printed as a single map on a smaller scale. Limiting parallels, 42° 30' and 43°. Limiting meridians, 87° 30' and 88° 30'. Size, 20 by 29 inches. Scale, 1:125,000, or about 2 miles to 1 inch. Contour interval, 20 feet. Price, 20 cents; if included in wholesale orders, 12 cents.

**River-survey maps (advance sheets).** The following advance sheets are now available for distribution but are useful chiefly to engineers. Price, 50 cents a sheet; no wholesale rate.

**CHIPPewa RIVER, Wis.** Six sheets (4 plans, 2 profiles) of the Chippewa River from mouth to Chippewa Falls and five sheets (4 plans, 1 profile) from Flambeau River to Chippewa Reservoir. Scale, 1:24,000. Contour intervals, 5 and 10 feet. (See also Water Supply Paper 417.)

**St. Croix RIVER, MINN.-Wis.** Six plan sheets of the St. Croix River from mouth to a point 11 miles above Danbury, Wis. Scale, 1:24,000. Contour interval, 5 feet.

**Wisconsin (State).** This map is in black and white and does not show contours. Size, 43 by 45 inches, in two sheets. Scale, 1:500,000, or about 8 miles to 1 inch. Price, 25 cents; if included in wholesale orders, 15 cents. Also published on a scale of 1:1,000,000, or about 16 miles to 1 inch; size, 21 by 24 inches; price, 5 cents; if included in wholesale orders, 3 cents.

**North America.** This map does not show contours. Size, 29 by 38 inches. Scale, 1:10,000,000, or about 158 miles to 1 inch. Price, 40 cents; if included in wholesale orders, 24 cents.

**Sheet of standard symbols.** Shows symbols and abbreviations adopted by the Board of Surveys and Maps, United States of America, for use on Government maps; printed in five colors. Size, 22 by 38 inches. Price, 40 cents; if included in wholesale orders, 24 cents.

## MAPS OF THE UNITED STATES

A wall map, 55 by 85 inches, in two sheets, on a scale of 37 miles to 1 inch, approximately, without contours, showing coal fields. Price, \$1; if included in wholesale orders, 60 cents.

A wall map, 49 by 78 inches, in two sheets, on a scale of 40 miles to 1 inch, approximately, without contours. Insets show Alaska, Hawaii, the Philippine Islands, Canal Zone, Porto Rico, and the Virgin Islands. Water features and their names are printed in blue; boundary lines and names of States, counties, cities, and towns are printed in black; and railroads are indicated by fine brown lines. Price, \$1; if included in wholesale orders, 60 cents.

A wall map, same size and scale as next above, without contours, showing producing oil and gas districts. Price, \$1; if included in wholesale orders, 60 cents.

A wall map, 49 by 76 inches, in two sheets, on a scale of 40 miles to 1 inch, approximately, with contours. Price, 60 cents; if included in wholesale orders, 36 cents.

A wall map, same size and scale as next above, without contours, showing producing coal districts. Price, 75 cents; if included in wholesale orders, 45 cents.

A wall map, 40 by 62 inches, on a scale of 50 miles to 1 inch, on which is indicated by depth of brown and blue colors the relative height of the land and the depth of the sea. The position of the principal cities and the boundaries of the States are shown. Price, 75 cents; in lots of 10 or more, 50 cents.

A map, 18 by 28 inches, on a scale of 110 miles to 1 inch, either with or without contours. Price, 15 cents; if included in wholesale orders, 9 cents.

A relief or hypsometric map, same size, scale, and price as next above; altitudes indicated by colors.

A base map, 11 by 16 inches, on a scale of 190 miles to 1 inch. Price, 5 cents; if included in wholesale orders, 3 cents.

A base map, 8½ by 12 inches, on a scale of 260 miles to 1 inch. Price, 1 cent; if included in wholesale orders, five for 3 cents.

A map, 28 by 31 inches, on a scale of 110 miles to 1 inch, without contours, showing the physical divisions. Price, 10 cents; if included in wholesale orders, 6 cents.

## LOCAL AGENTS FOR TOPOGRAPHIC MAPS

Purchasers may save delay incident to ordering through the mails by buying of the following agents, who carry in stock maps of areas in their vicinity and sell them at prices slightly in advance of rates mentioned in this circular.

### WISCONSIN

**MADISON:**  
University Cooperative Co., 506 State Street.

**MILWAUKEE:**  
Caspar, Krueger, Dory Co., 722 North Water Street.

### ILLINOIS

**CHICAGO:**  
Fred Wild Co., 314 South Franklin Street.

### NEW YORK

**NEW YORK CITY:**  
Hagstrom Map Co., 20 Vesey Street.

**NEW YORK CITY—Continued:**  
C. S. Hammond & Co., 30 Church Street.

## GEOLOGIC AND OTHER REPORTS

The following reports relate to Wisconsin but are not parts of the topographic or geologic atlas. An asterisk (\*) indicates that the report is out of print, but many such reports are available for consultation in certain libraries. (See list on p. 4.) The publications for which the price is stated are sold by the Superintendent of Documents, Government Printing Office, Washington, D. C. Remittance to that official should be made by postal money order, express order, or check; postage stamps will not be accepted.

## ANNUAL REPORTS:

- Third, 1881-82. 564 pp. \$2.35. Contains: The copper-bearing rocks of Lake Superior, by R. D. Irving, pp. 89-188; Production of the precious metals in the United States, by Clarence King, pp. 331-401.
- Fifth, 1883-84. 469 pp. \$2.25. Contains: Preliminary paper on an investigation of Archean formations of the Northwestern States, by R. D. Irving, pp. 175-242.
- Sixth, 1884-85. 570 pp. \$2. Contains: Preliminary paper on the Driftless Area of the upper Mississippi Valley, by T. C. Chamberlin and R. D. Salisbury, pp. 199-322.
- Seventh, 1885-86. 656 pp. \$2. Contains: The rock scorings of the great ice invasions, by T. C. Chamberlin, pp. 147-248; On the classification of early Cambrian and pre-Cambrian formations, by R. D. Irving, pp. 365-454.
- Eighth, 1886-87. \*Part II. pp. 483-1063. Contains: The geographical distribution of fossil plants, by L. F. Ward, pp. 683-690.
- Tenth, 1888-89. Part I. 774 pp. \$2.35. Contains: The Penokee iron-bearing series of Michigan and Wisconsin, by R. D. Irving and C. R. Van Hise, pp. 341-507.
- Twelfth, 1890-91. Part I. 675 pp. \$2. Contains: The North American continent during Cambrian time, by C. D. Walcott, pp. 523-568.
- Thirteenth, 1891-92. \*Part II. 372 pp. Contains: The geological history of harbors, by N. S. Shaler, pp. 93-209; The average elevation of the United States, by Henry Gannett, pp. 283-289.
- Fourteenth, 1892-93. \*Part II. 597 pp. Contains: Natural mineral waters of the United States, by A. C. Peale, pp. 49-88.
- Sixteenth, 1894-95. \*Part I. 910 pp. Contains: Principles of North American pre-Cambrian geology, by C. R. Van Hise, with an appendix on flow and fracture of rocks as related to structure, by L. M. Hoskins, pp. 571-874.
- Seventeenth, 1895-96. \*Part I. 1076 pp. Contains: Magnetic declination in the United States, by Henry Gannett, pp. 203-440.
- Eighteenth, 1896-97. Part I. 440 pp. \$1. Contains: Triangulation and spirit leveling, pp. 131-422. \*Part II. 653 pp. Contains: Recent earth movement in the Great Lakes region, by G. K. Gilbert, pp. 595-647.
- Nineteenth, 1897-98. Part I. 422 pp. \$1. Contains: Triangulation and spirit leveling, pp. 145-408.
- Twentieth, 1898-99. Part I. 551 pp. \$1. Contains: Triangulation and spirit leveling, pp. 211-530.
- Twenty-first, 1899-1900. Part I. 608 pp. \$1.25. Contains: Triangulation, primary traverse, and spirit leveling, pp. 205-582. \*Part III. 644 pp. Contains: The iron-ore deposits of the Lake Superior region, by C. R. Van Hise, pp. 305-434.

## MONOGRAPHS:

- \*3. The copper-bearing rocks of Lake Superior, by R. D. Irving. 1883. 464 pp.
- \*16. The Paleozoic fishes of North America, by J. S. Newberry. 1889. 340 pp.
- \*19. The Penokee iron-bearing series of Michigan and Wisconsin, by R. D. Irving and C. R. Van Hise. 1892. 534 pp.
51. Cambrian Brachiopoda, by C. D. Walcott. 1912. In two parts. Part I, 372 pp.; Part II, 363 pp. \$4.
52. The geology of the Lake Superior region, by C. R. Van Hise and C. K. Leith. 1911. 641 pp. \$2.50.
53. The Pleistocene of Indiana and Michigan and the history of the Great Lakes, by Frank Leverett and F. B. Taylor. 1915. 529 pp. \$1.50.

## PROFESSIONAL PAPERS:

- \*11. The clays of the United States east of the Mississippi River, by Heinrich Ries. 1903. 298 pp.
34. The Delavan lobe of the Lake Michigan glacier of the Wisconsin stage of glaciation and associated phenomena, by W. C. Alden. 1904. 106 pp. 55c.
106. The Quaternary geology of southeastern Wisconsin, by W. C. Alden. 1918. 356 pp. \$1.
- \*135. The composition of the river and lake waters of the United States, by F. W. Clarke. 1924. 199 pp.
154. Shorter contributions to general geology, 1928. 299 pp. \$1.50. (a) Moraines and shore lines of the Lake Superior Basin, by Frank Leverett, pp. 1-72, 50c.
161. Quaternary geology of Minnesota and parts of adjacent States, by Frank Leverett, with contributions by F. W. Sardeson. 1932. 149 pp. \$1.25.

## BULLETINS:

- \*5. A dictionary of altitudes in the United States, compiled by Henry Gannett, chief geographer. 1884. 325 pp.
- \*13. Boundaries of the United States and of the several States and Territories, with a historical sketch of the territorial changes, by Henry Gannett, chief geographer. 1885. 135 pp.
- \*27. Report of work done in the division of chemistry and physics, mainly during the fiscal year 1884-85. 80 pp. Contains: Miscellaneous analyses, pp. 62-76.
- \*32. Lists and analyses of the mineral springs of the United States (a preliminary study), by A. C. Peale. 1886. 235 pp.
- \*42. Report of work done in the division of chemistry and physics, mainly during the fiscal year 1885-86. 152 pp. Contains: Miscellaneous analyses, pp. 136-149.
- \*55. Report of work done in the division of chemistry and physics, mainly during the fiscal year 1886-87. 96 pp. Contains: Miscellaneous analyses, pp. 77-93.
- \*60. Report of work done in the division of chemistry and physics, mainly during the fiscal year 1887-88. 174 pp. Contains: Miscellaneous analyses, pp. 149-174.
- \*64. A report of work done in the division of chemistry and physics, mainly during the fiscal year 1888-89. 60 pp. Contains: Miscellaneous analyses, pp. 40-60.
- \*72. Altitudes between Lake Superior and the Rocky Mountains, by Warren Upham. 1891. 229 pp.

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 42 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps on sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, they represent areas of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

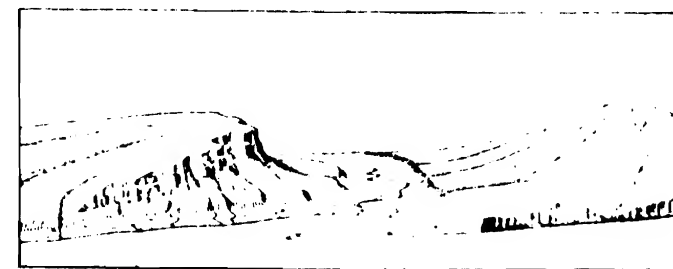
A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$  or about 10 miles to an

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



ing spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Good motor or public roads are shown by line double lines, poor motor or private roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,300 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

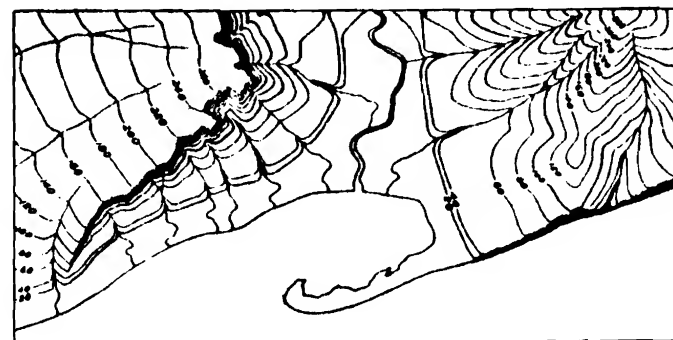
Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 per cent is allowed on an order for maps amounting to \$5 or more at the retail price. The geologic

regions of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slop-

ive text to form a folio of the Geologic Atlas of the United States. More than 220 folios have been published.

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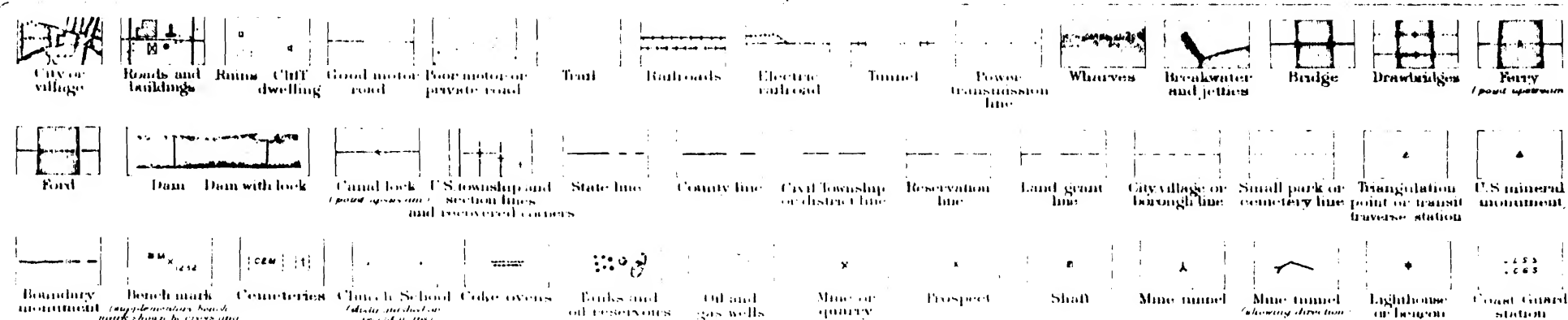
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

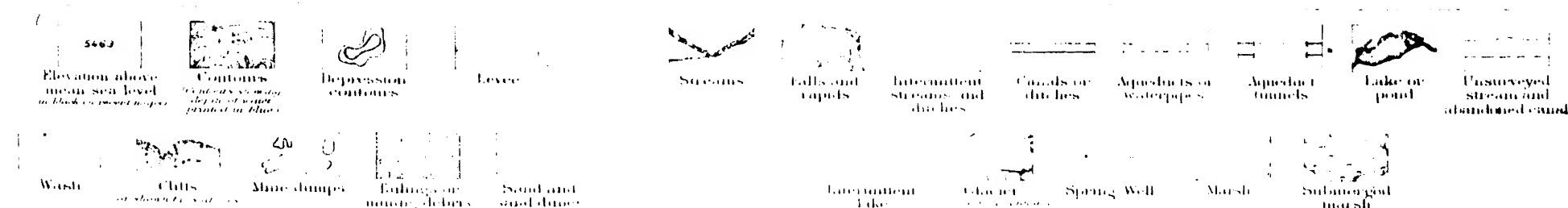
September, 1928.

## STANDARD SYMBOLS

### CULTURE (printed in black)



### RELIEF (printed in brown)



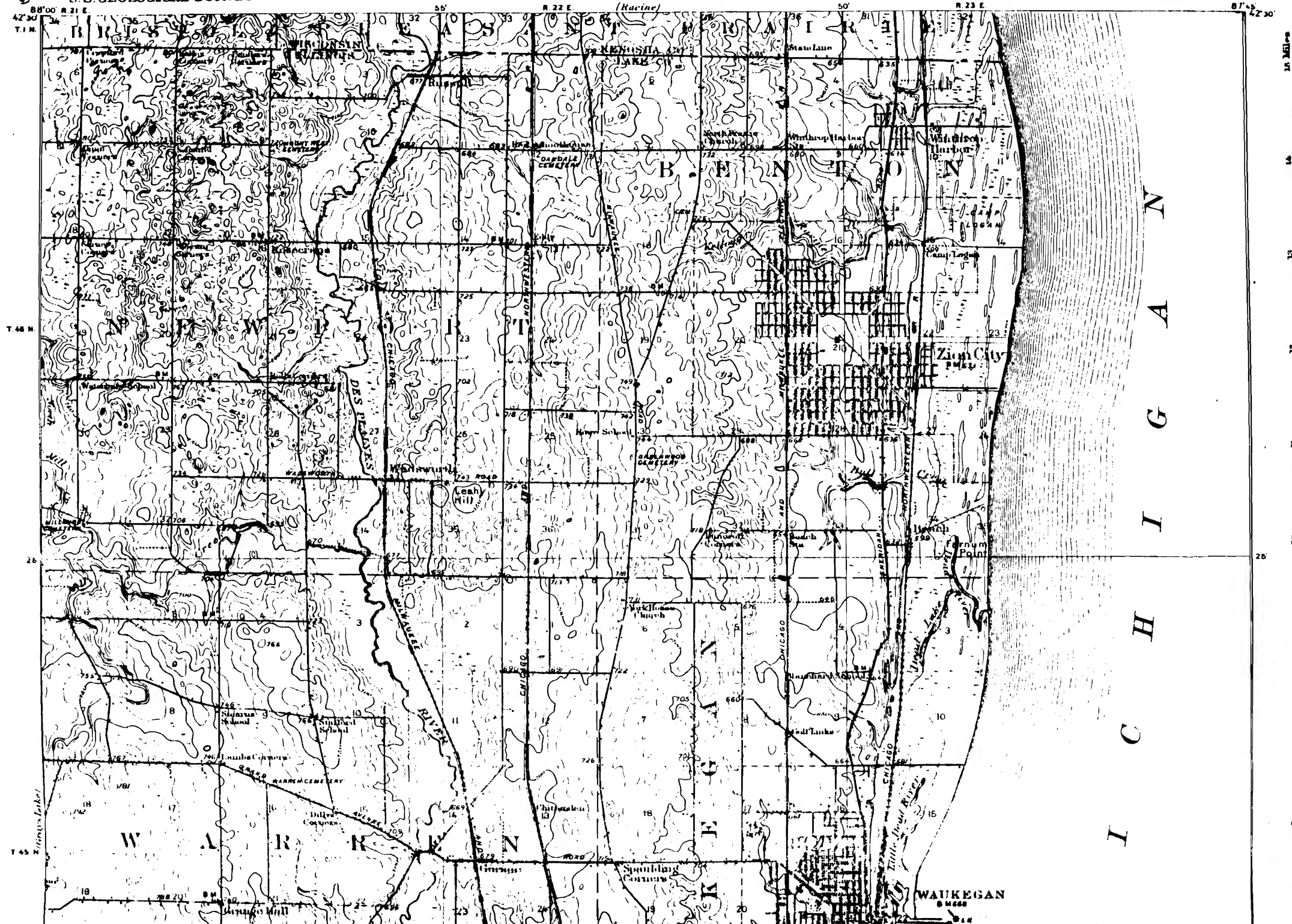
### WOODS (when shown, printed in green)

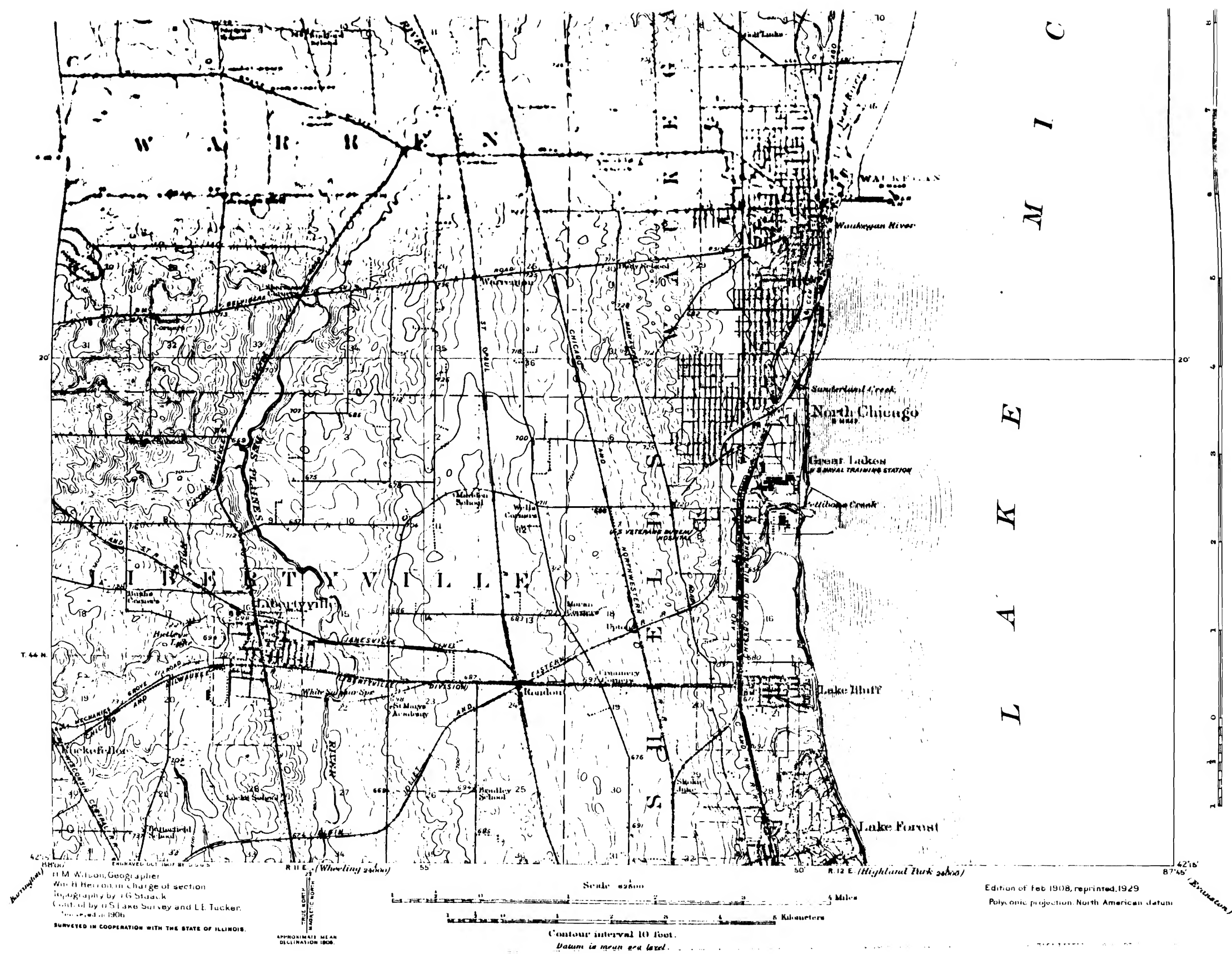


DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF ILLINOIS  
REPRESENTED BY THE  
DEPARTMENT OF REGISTRATION AND EDUCATION  
GEOLOGICAL SURVEY DIVISION.

ILLINOIS-WISCONSIN  
WAUKEGAN QUADRANGLE





M I C

L A K E

H

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

4. Surveys of areas in which there are problems of great public importance relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch = one-half mile, with a contour interval of 1, 5, or 10 feet.

2. Survey of area in which there are problems of average public importance, such as most of the East of the Mississippi and of California, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch = nearly 1 mile, with a contour interval of 10 to 20 feet.

3. Survey of areas in which the present state of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a small scale of such accuracy that a small compass survey may be taken there.

A large proportion of the Alameda County population is of Mexican descent, and nearly 40 percent of its area has now been irrigated. About 10 percent of the County has been irrigated.

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground on which every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seaward itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run to other indicate a cliff.

The vector in which you enter has 4 entries: altitude, norm, and grade (shown in the figure below).

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The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins issued by the Geological Survey.

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Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margin of the map are printed the names of adjoining quadrangles of which it has been published. Over 3,500 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the map showing the features are bound together with a description of the area and a list of the Geologic Atlas of the United States. Maps from 1904 to 1935 have been published.

[illegible]

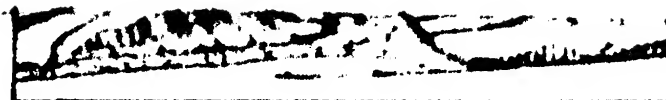
on the pathlengths of single or a scale of  $\mu_m(\lambda)$  in the vicinity  
of  $\lambda_0$ , with a constant interval of 10 to 20 nm.

8. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of 1 inch = nearly 2 miles, with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{625,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 4,000 square miles has been mapped on a scale of  $\frac{1}{62,500}$  or larger.

The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups: (1) water, including sea, lakes, rivers, canal, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping

Many of the 100,000 photographs are of the same type, showing the same features, as the 100,000 photographs with a descriptive text to form a folio of the Catalogue Atlas of the United States. More than 220 folios have been published.

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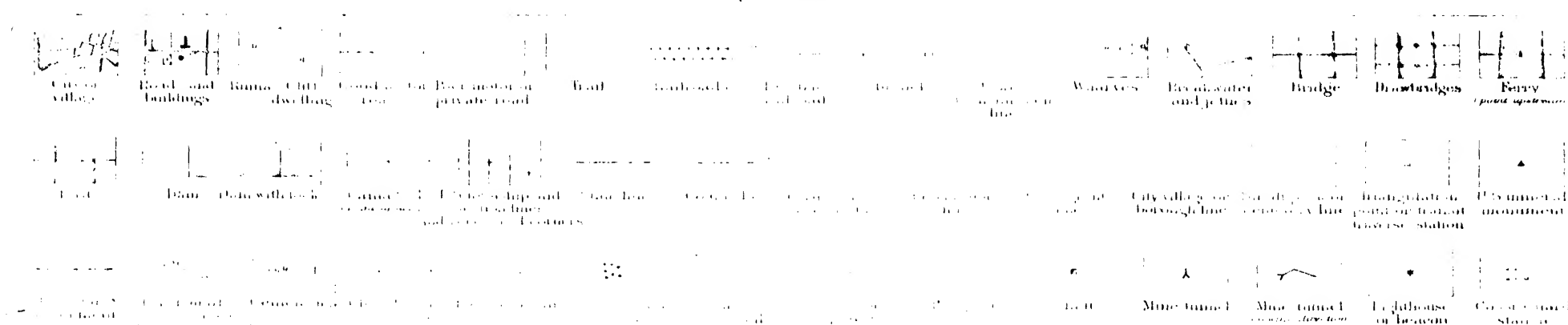
United States Geological Survey,

Washington, D. C.

September, 1928.

## STANDARD SYMBOLS

CULTURE  
*printed in black*



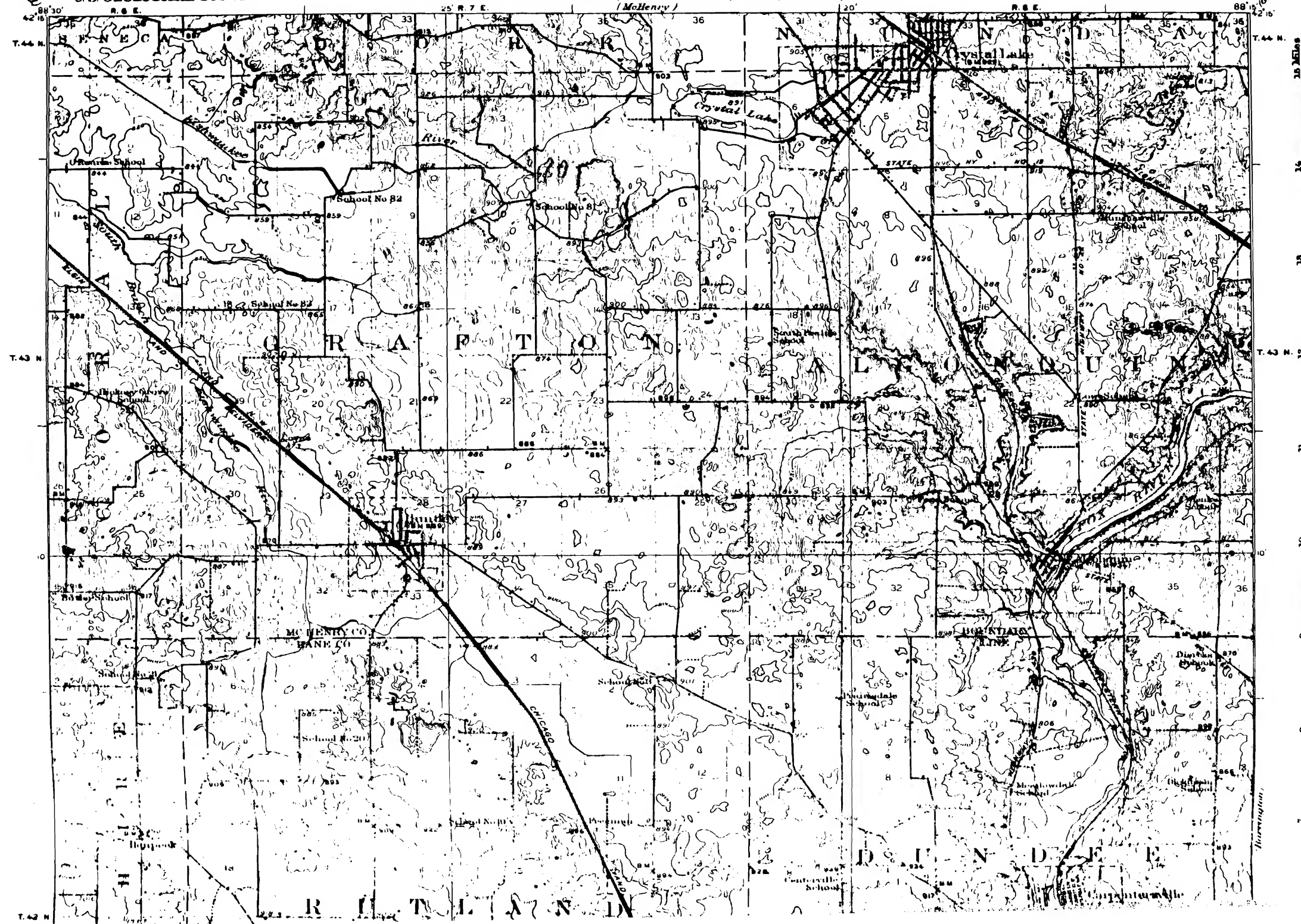
WATER  
printed in the U.S.A.

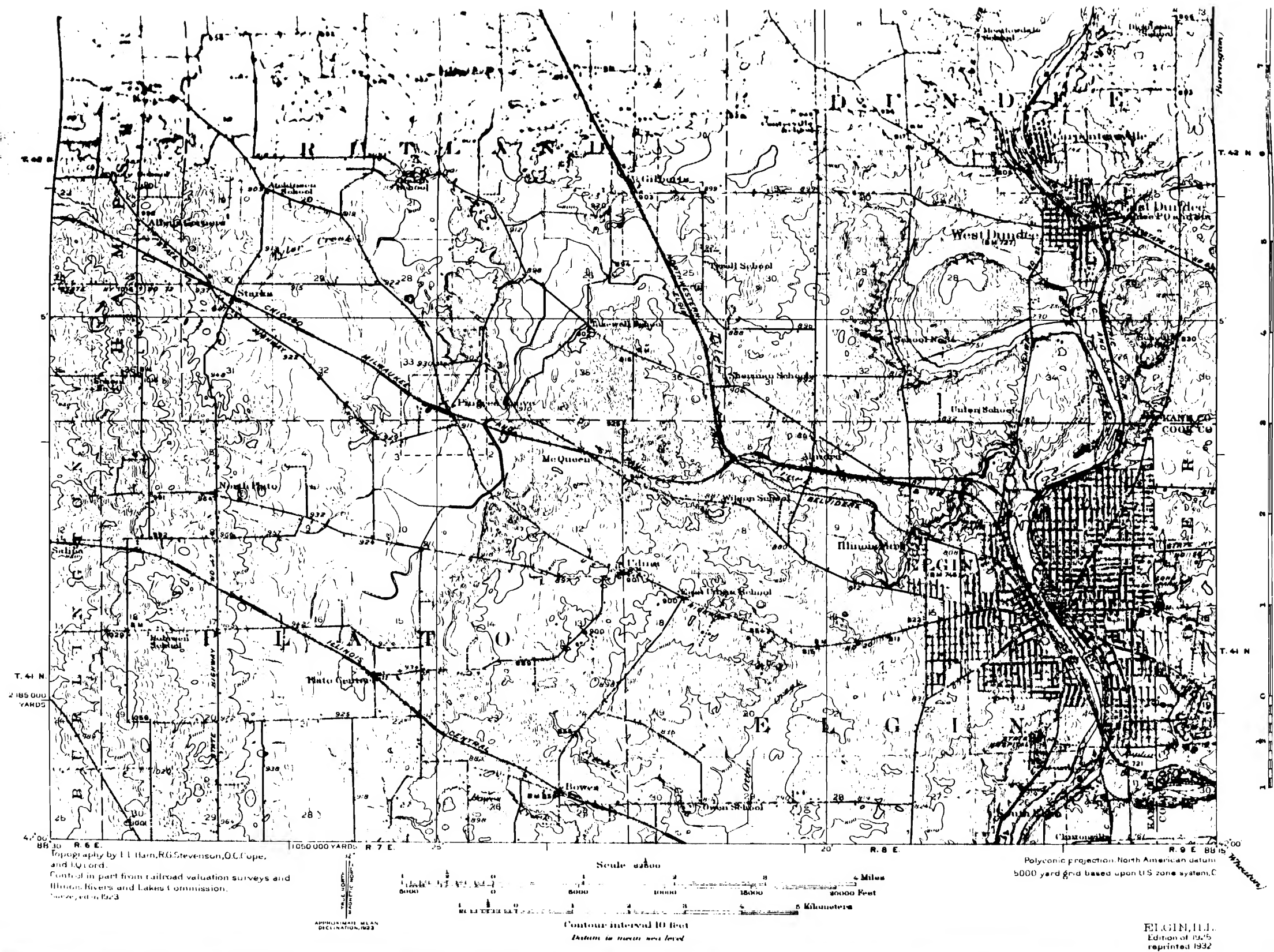


DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF ILLINOIS  
DEPARTMENT OF REGISTRATION AND EDUCATION  
M.F. WALSH, DIRECTOR  
GEOLOGICAL SURVEY DIVISION, M.M. LEIGHTON, CHIEF, URBANA, ILLINOIS  
(McHenry)

ILLINOIS  
ELGIN QUADRANGLE





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2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch=nearly 1 mile), with a contour interval of 10 to 20 feet.
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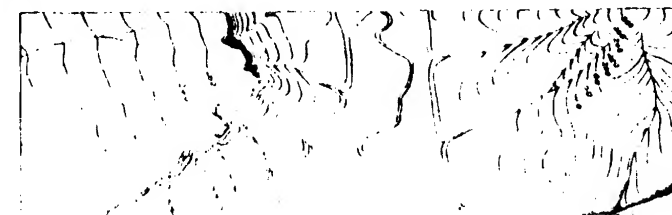
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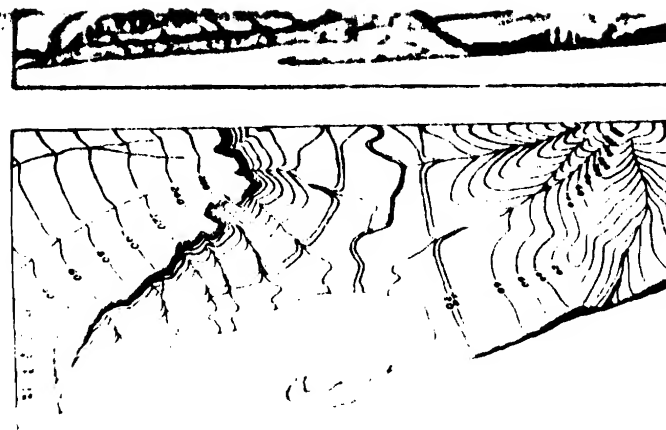
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The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of 1:250,000.

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The sketch represents a river valley that lies between two hills. To the far right is the sea, with a bay that is partly enclosed by a headland and two. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently slopes

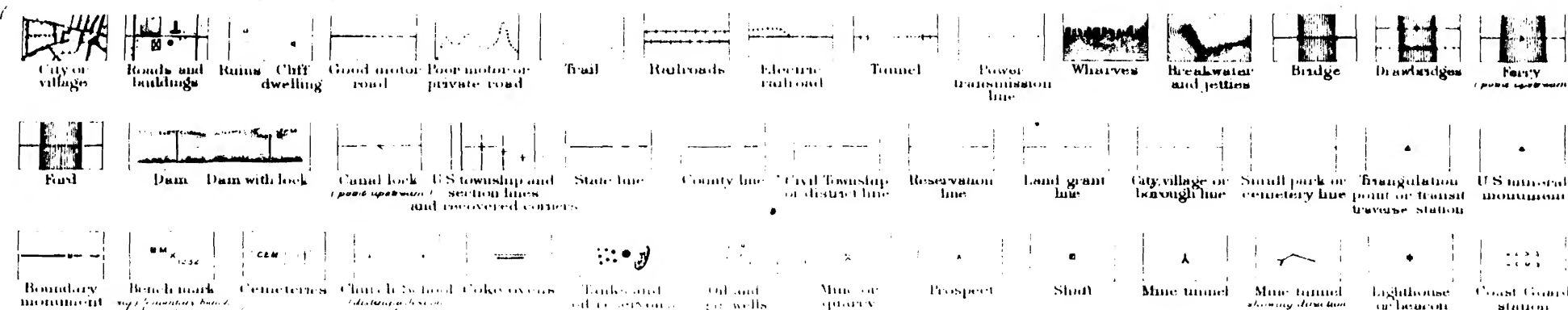
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

September, 1928.

CULTURE  
(printed in black)



## RELIEF

printed in Sweden

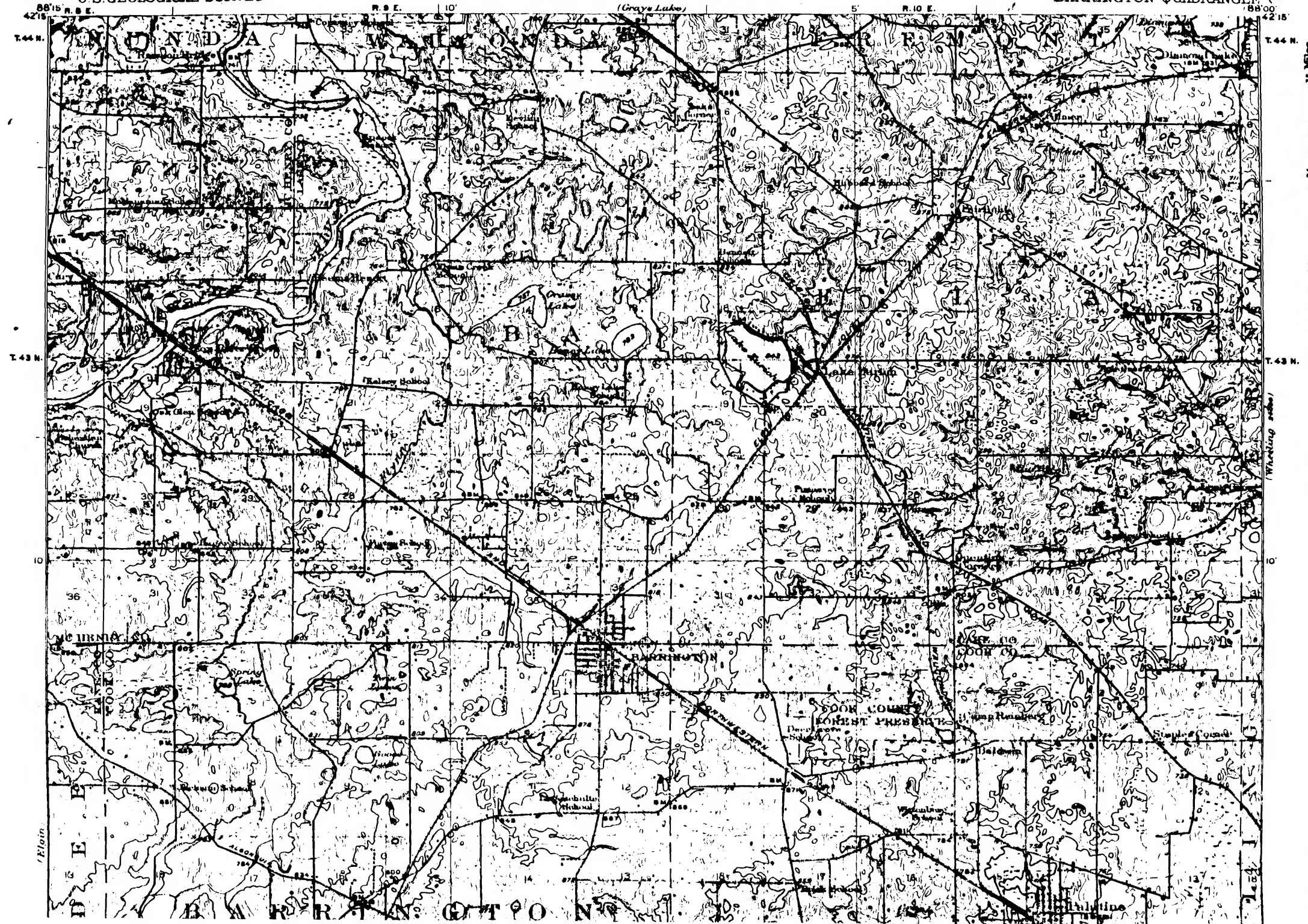


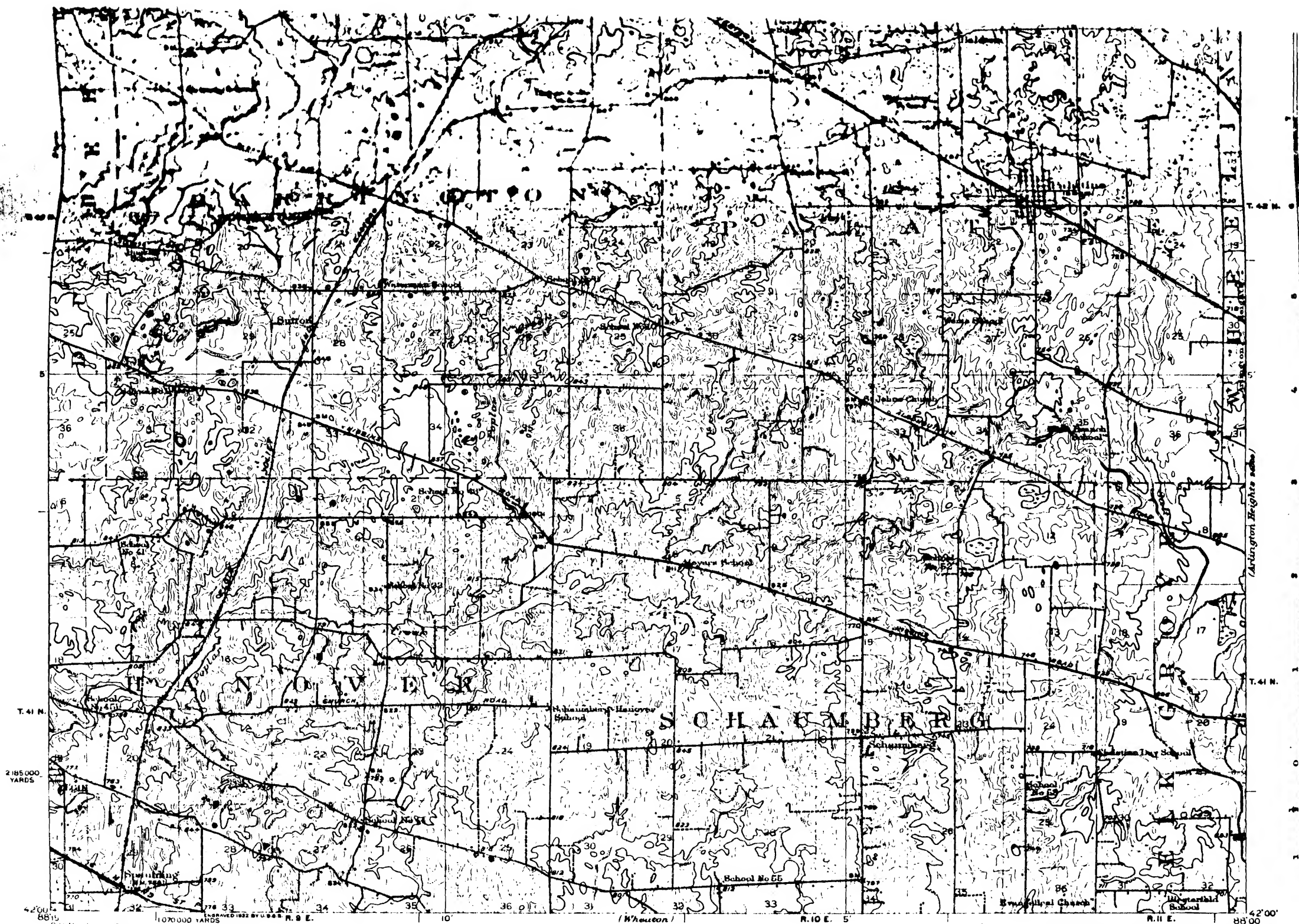


DEPARTMENT OF THE INTERIOR  
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ILLINOIS  
BARRINGTON QUADRANGLE

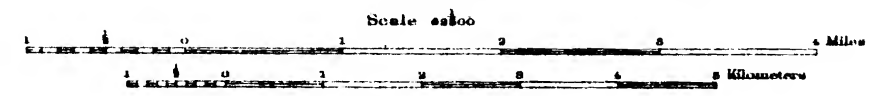




CH Birdseye, Chief Topographic Engineer.  
W H Herron, Topographic Engineer in charge.  
Topography by Gilbert Young, W K McKinley, and W B Brewer.  
Control by F J M Maugh, L E Tucker, and S L Parker.  
Surveyed in 1919-1920.

SURVEYED IN COOPERATION WITH THE STATE OF ILLINOIS.

Brewer  
McKinley  
Young



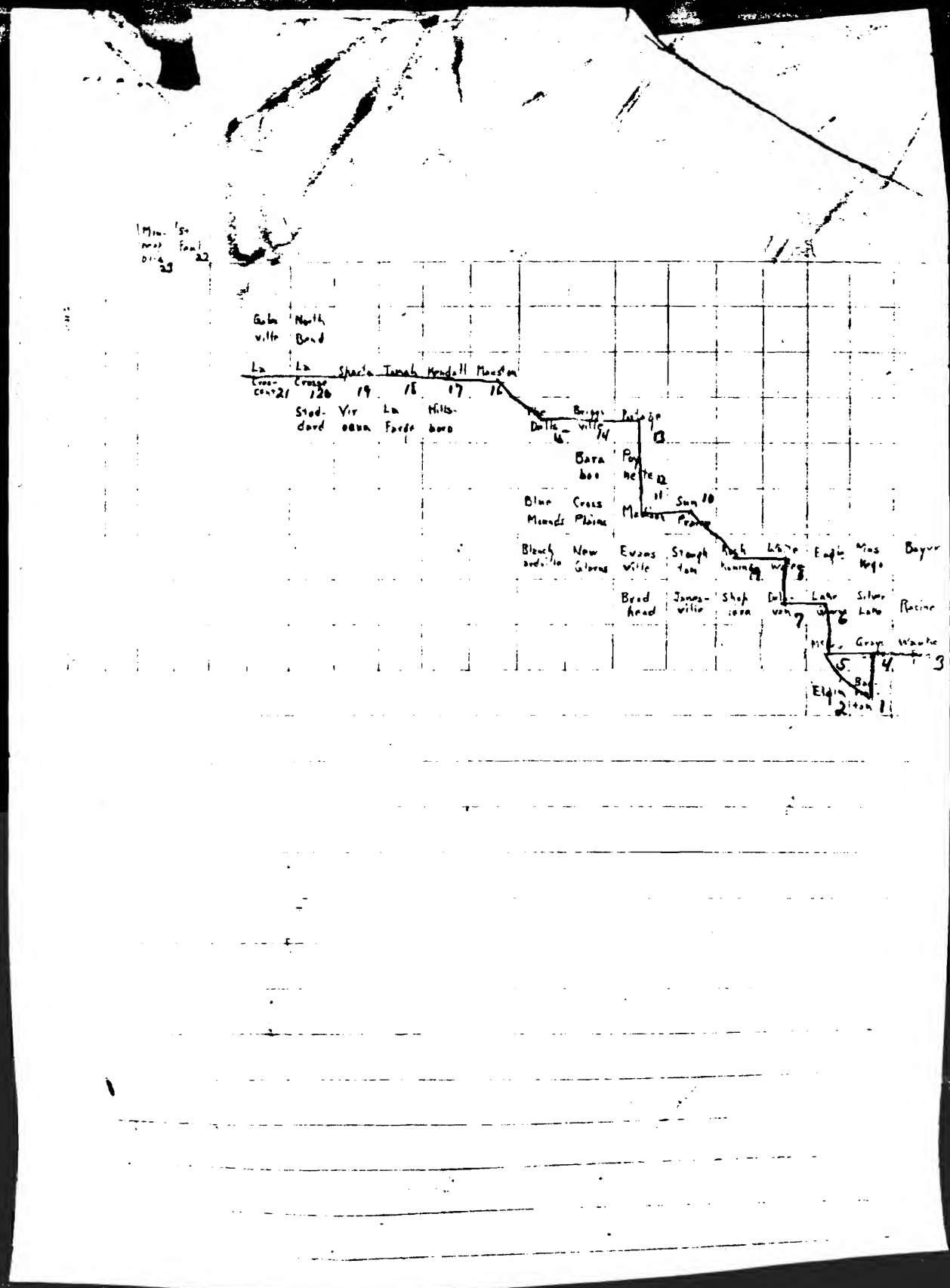
Contour interval 10 feet.  
Datum is mean sea level.

ALPHABETIC MEAN  
DECLINATION 1918

Polyconic projection, North American datum.  
5000 yard grid based upon zone C for P.M.M.

BARRINGTON, ILL.  
Edition of 1923  
reprinted 1944

#1





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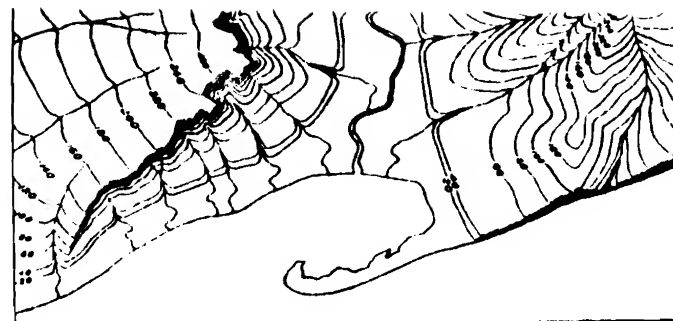


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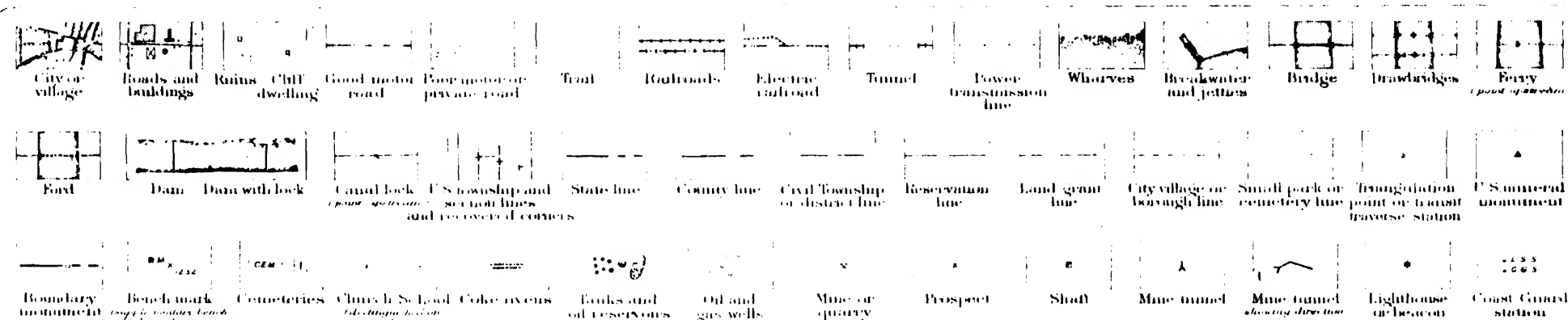
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United States Geological Survey,  
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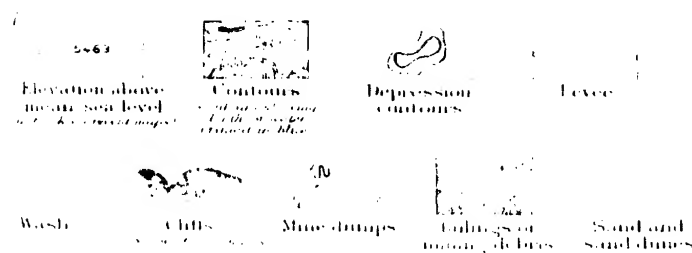
September, 1928.

## STANDARD SYMBOLS

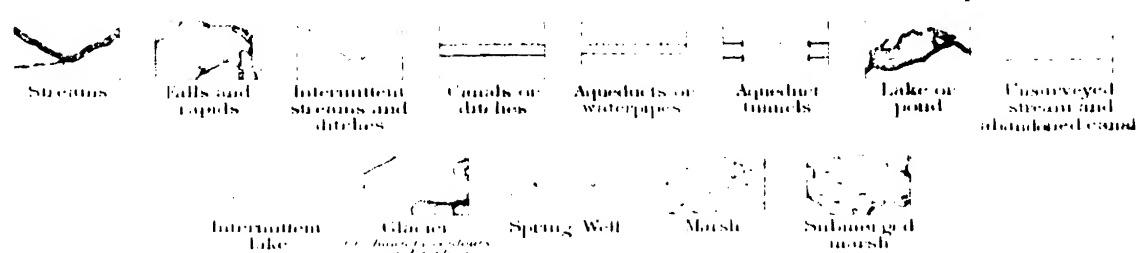
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

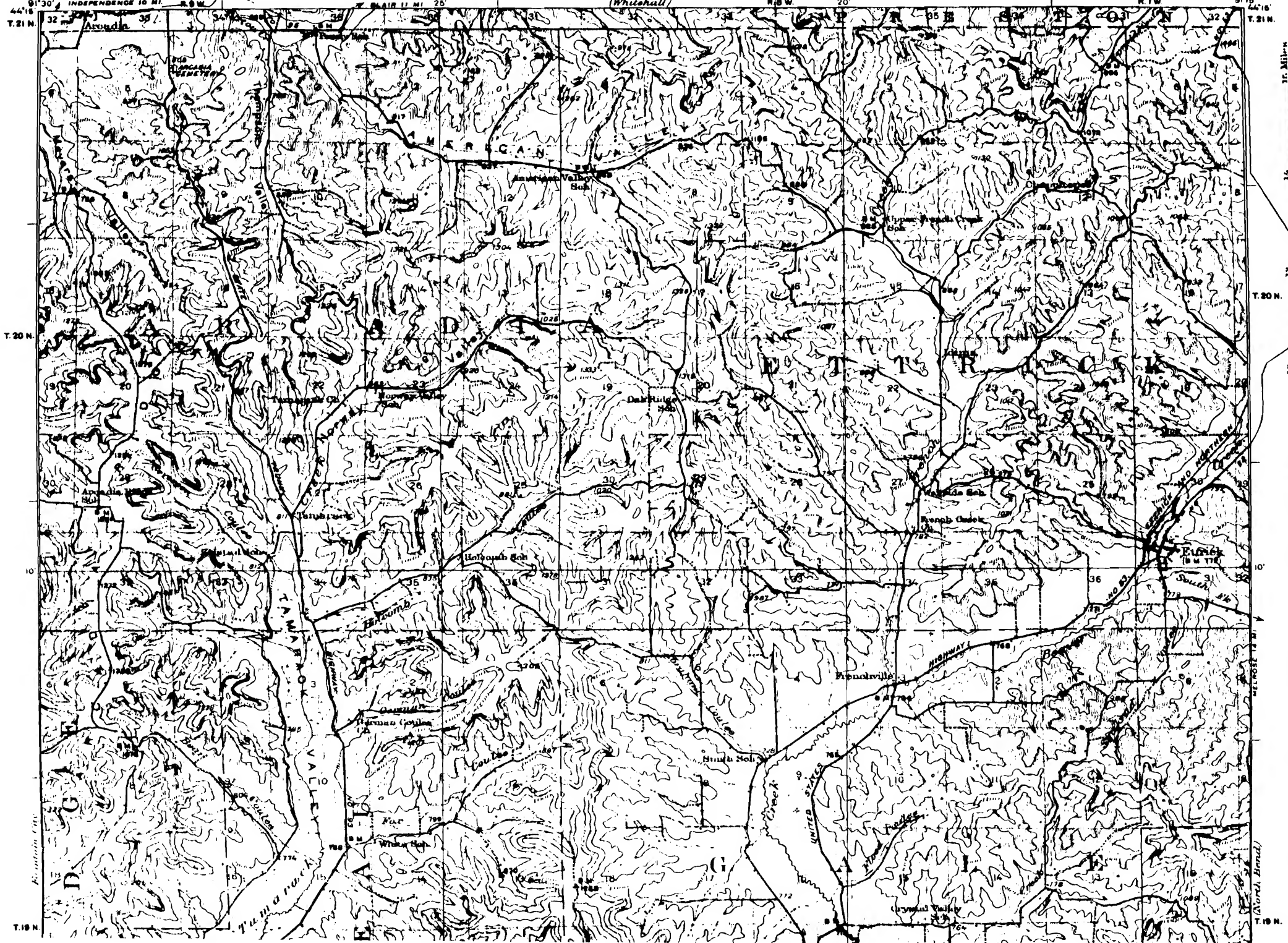


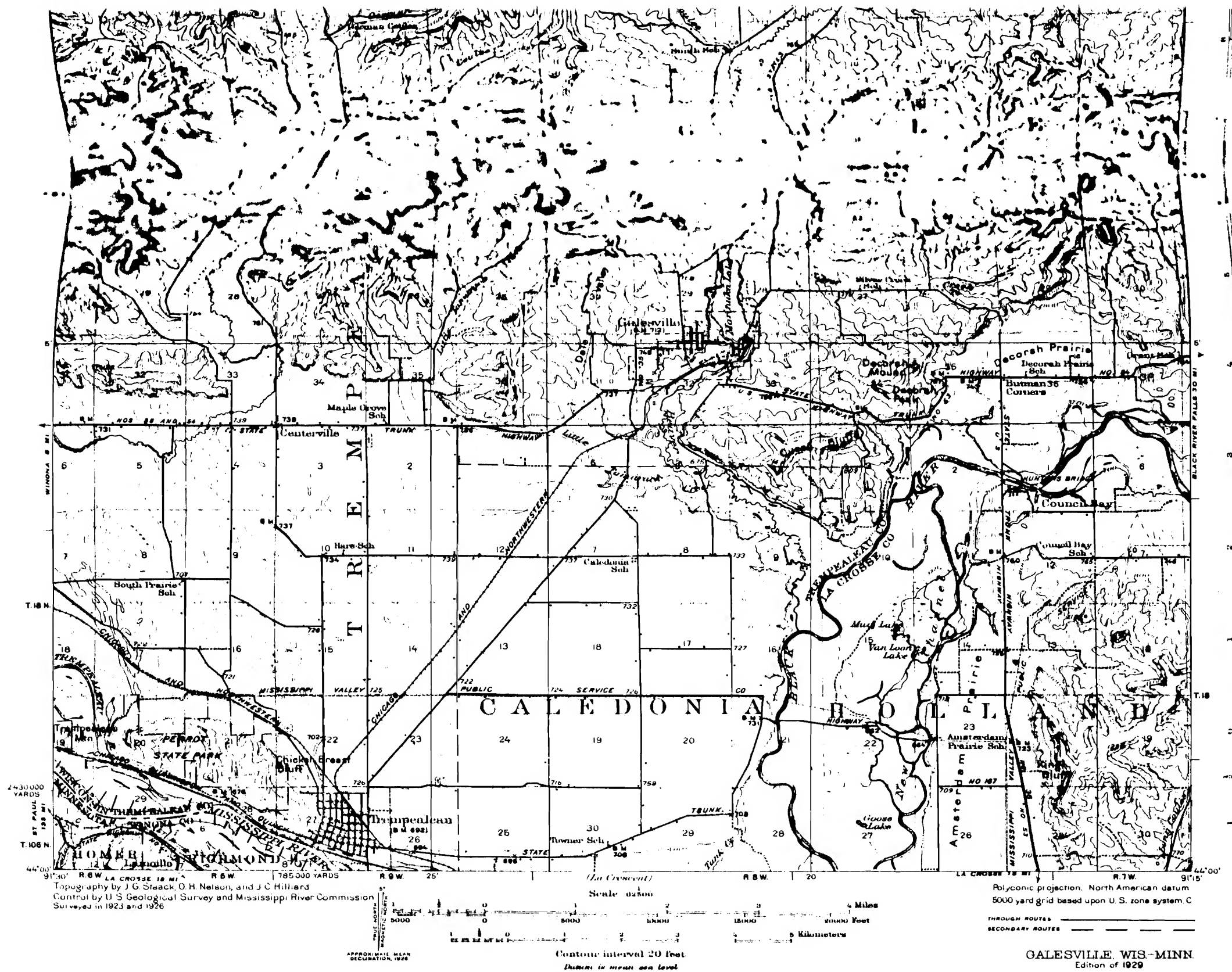
### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
E. F. BEAN, DIRECTOR AND STATE GEOLOGIST

WISCONSIN-MINNESOTA  
GALESVILLE QUADRANGLE





Topography by J. G. Staack, O. H. Nelson, and J. C. Hilliard  
Control by U. S. Geological Survey and Mississippi River Commission  
Surveyed in 1923 and 1926

Scale 1:25,000  
Contour interval 20 feet  
Distances in meters and feet  
Approximate mean  
elevation, 1929

Polyconic projection, North American datum  
5000 yard grid based upon U. S. zone system, C  
THROUGH ROUTES  
SECONDARY ROUTES  
GALESVILLE, WIS.-MINN.  
Edition of 1929

## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.
2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.
3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{250,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 43 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has

(works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



ing spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

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Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 3,300 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

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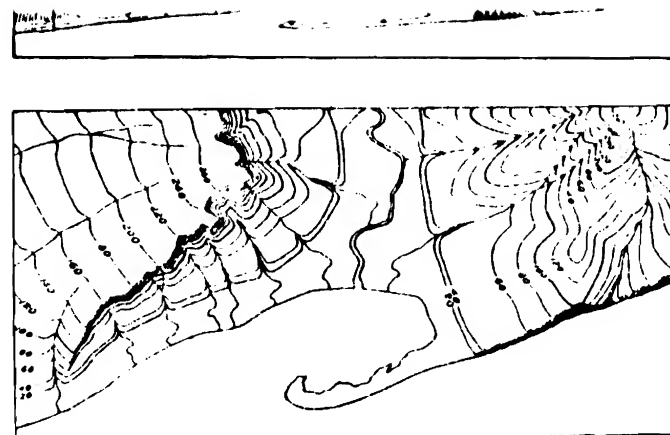


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The Hawaiian Islands, with the exception of the small islands at the western end of the group, have been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

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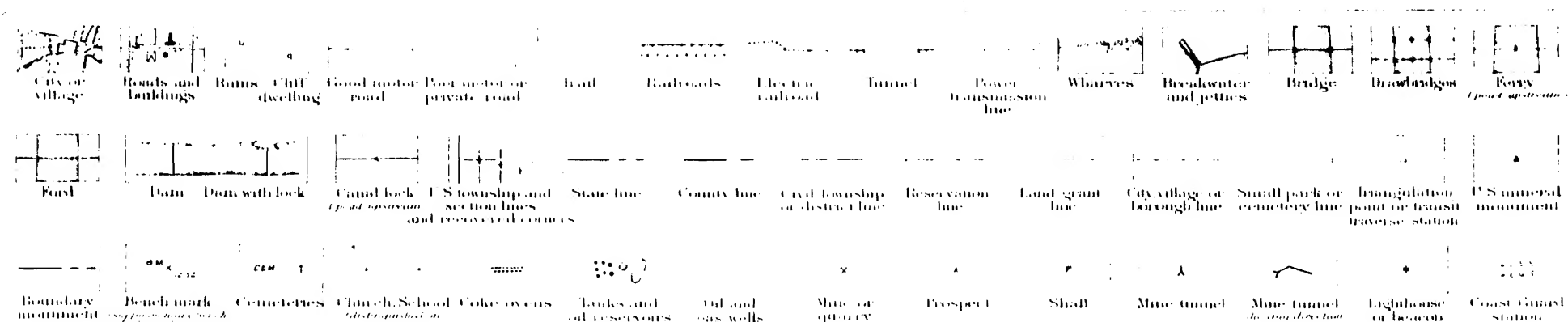
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THE DIRECTOR,  
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September, 1928.

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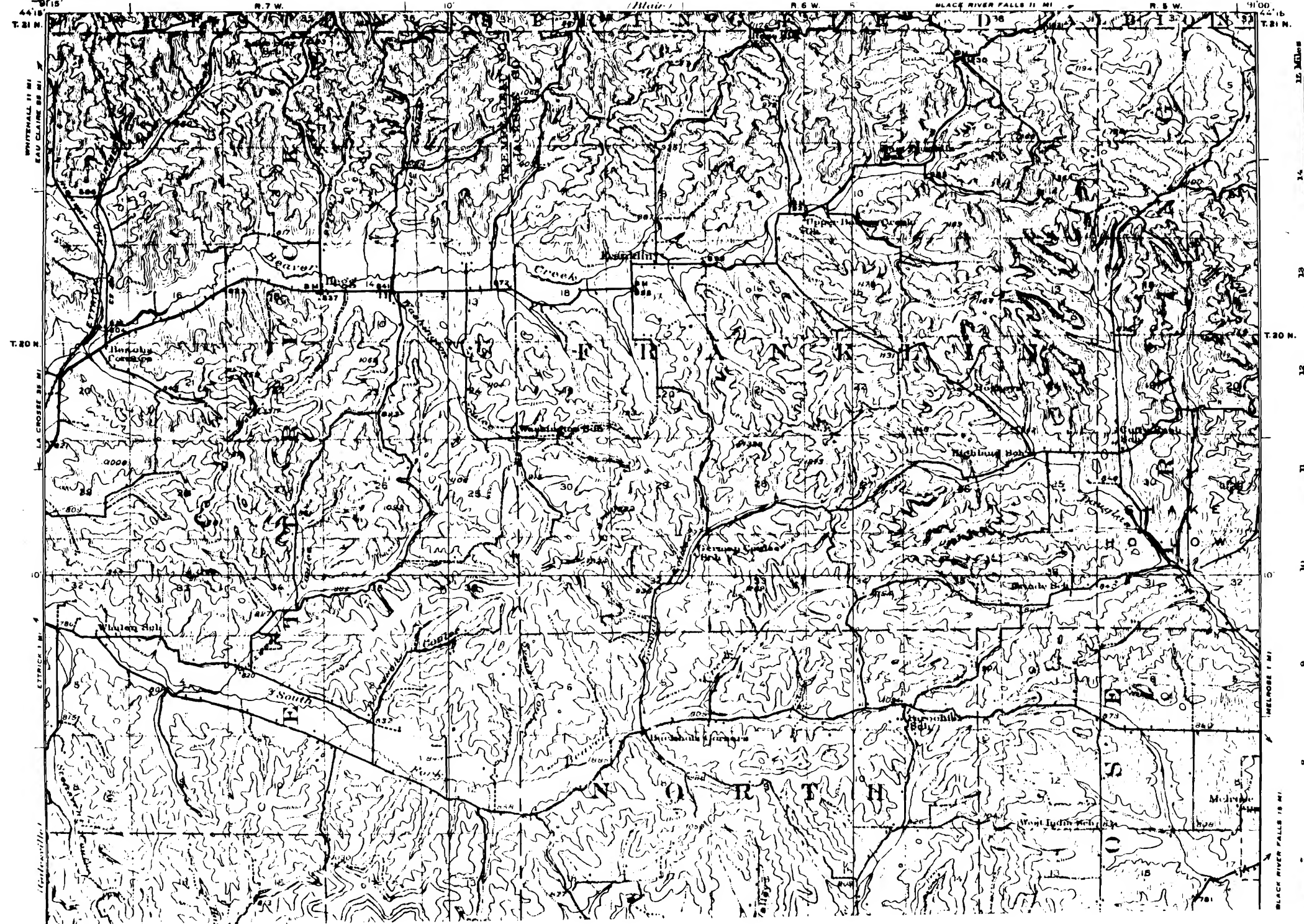
### WATER (printed in blue)

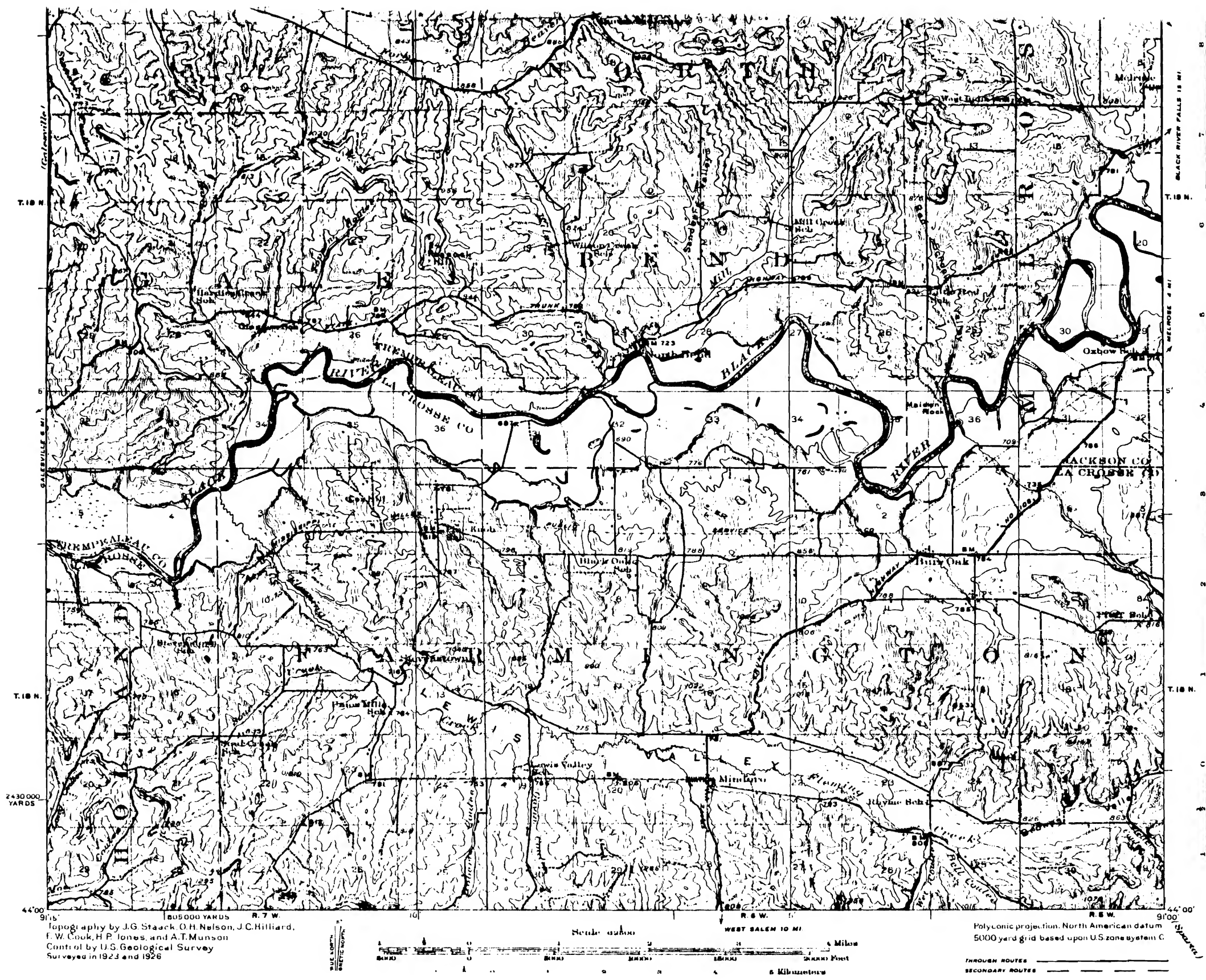
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DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

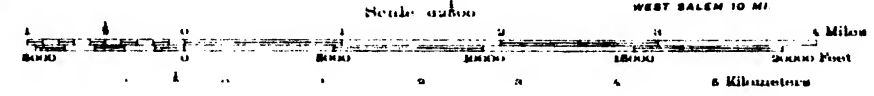
WISCONSIN  
NORTH BEND QUADRANGLE





Topography by J.G. Staack, O.H. Nelson, J.C. Hilliard,  
F.W. Cook, H.P. Jones, and A.T. Munson  
Control by U.S. Geological Survey  
Surveyed in 1923 and 1926

Scale 1:50,000



Polyconic projection, North American datum  
5000 yard grid based upon U.S. zone system C

THROUGH ROUTES  
SECONDARY ROUTES



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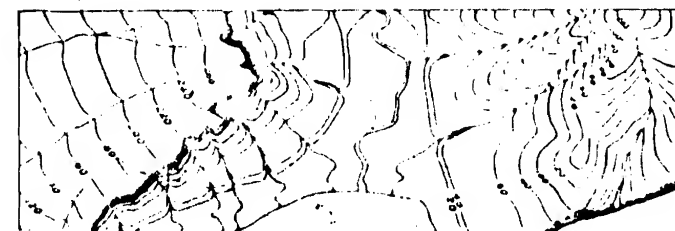
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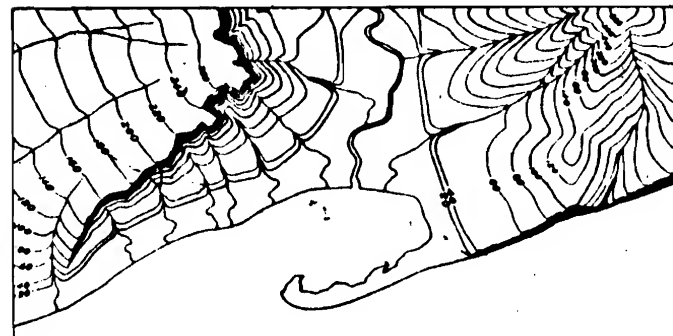


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About half of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

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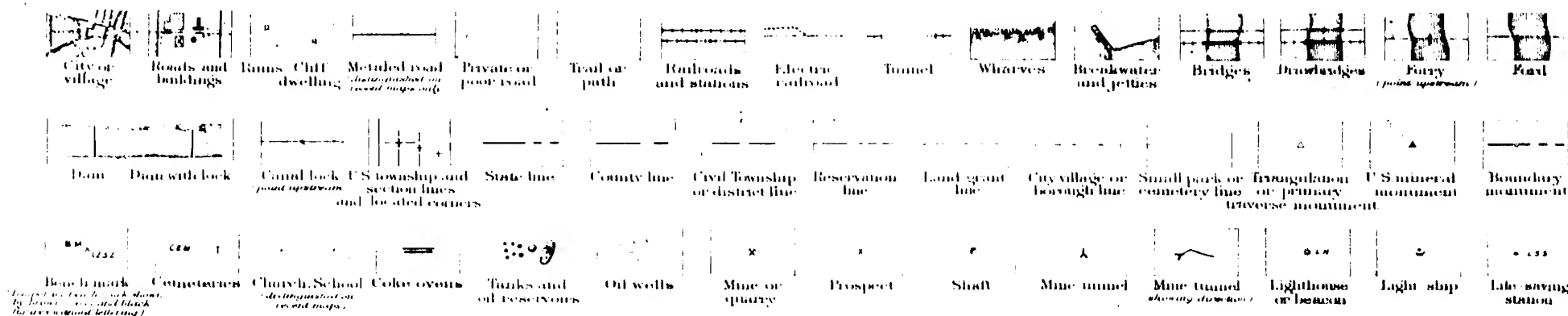
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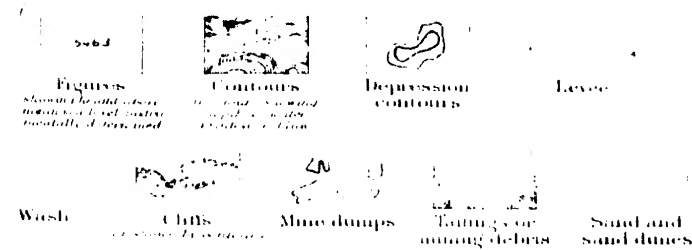
January, 1924.

## CONVENTIONAL SIGNS

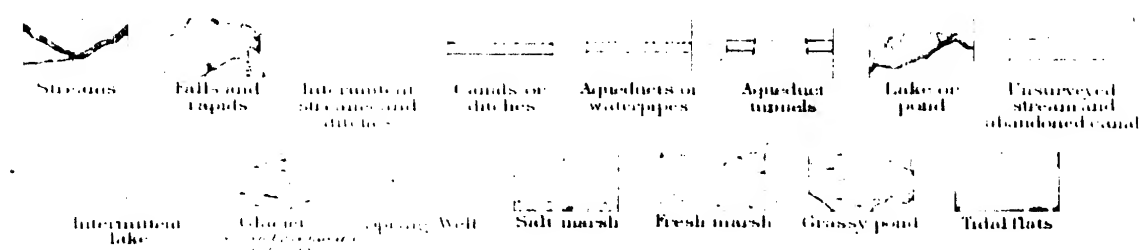
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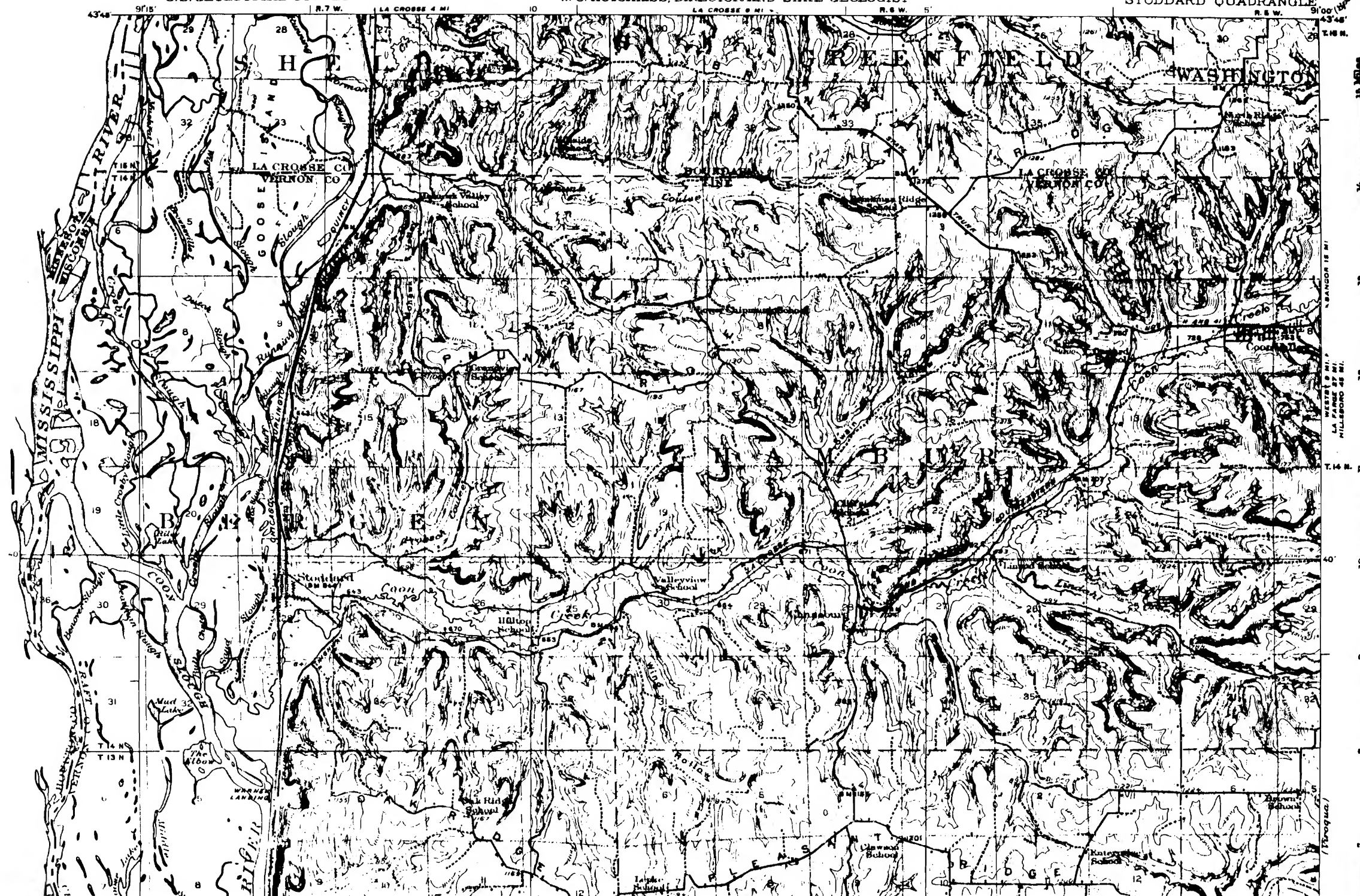


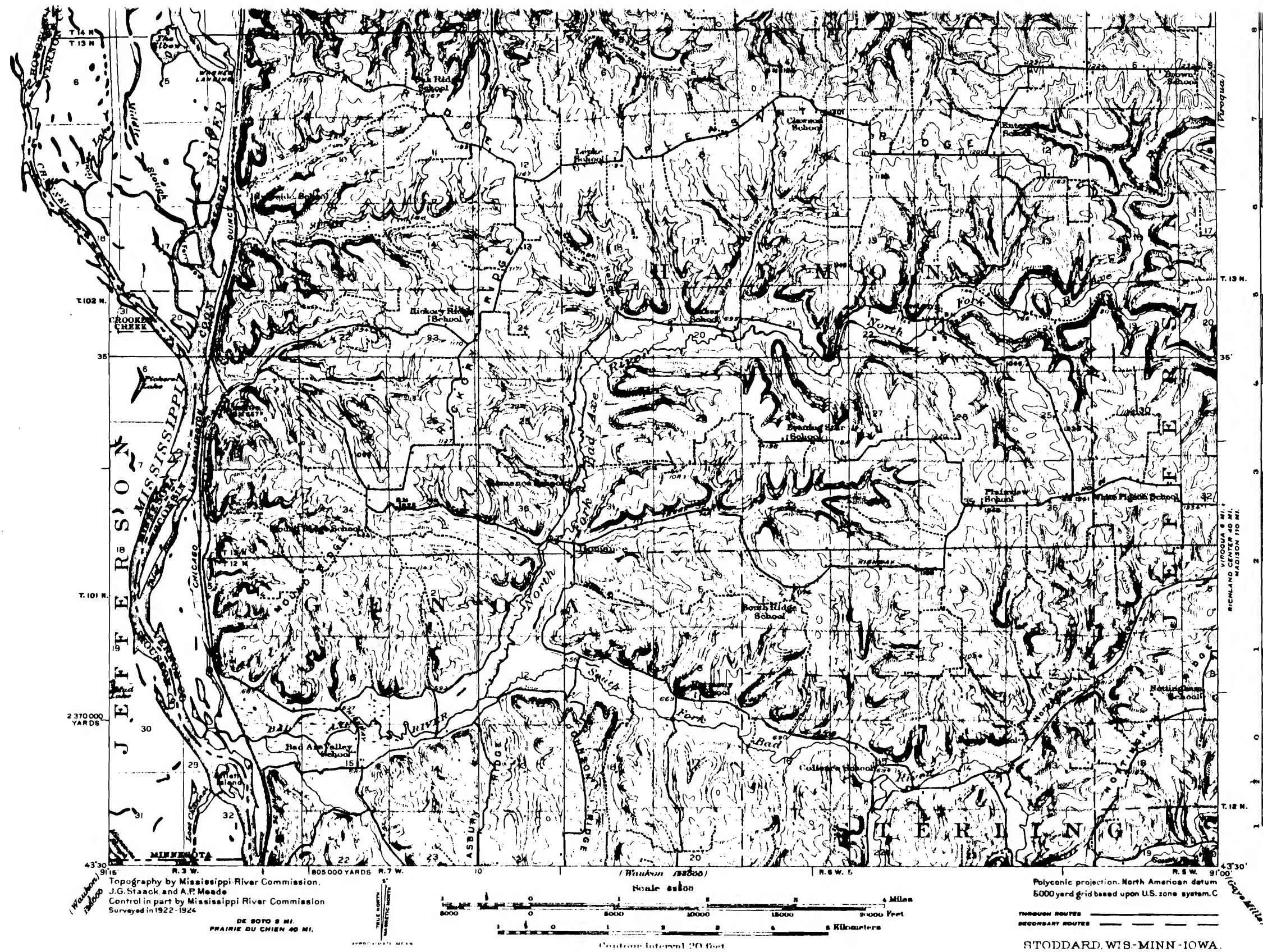
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DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN-MINNESOTA-IOWA  
STODDARD QUADRANGLE





Topography by Mississippi River Commission,  
J.G. Staack and A.P. Meade  
Control in part by Mississippi River Commission  
Surveyed in 1922-1924

DE SOTO 8 MI.  
PRAIRIE DU CHIEN 40 MI.

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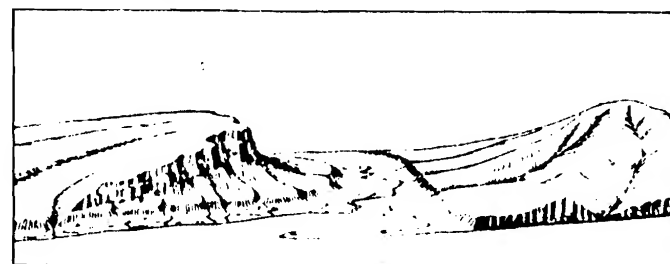
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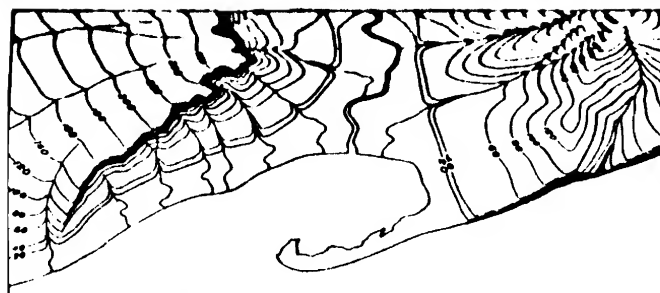
In the publication of maps on a scale of one inch = nearly 1 mile, with a contour interval of 10 to 25 feet.

2. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of one inch = nearly 2 miles, with a contour interval of 25 to 100 feet.

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The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at

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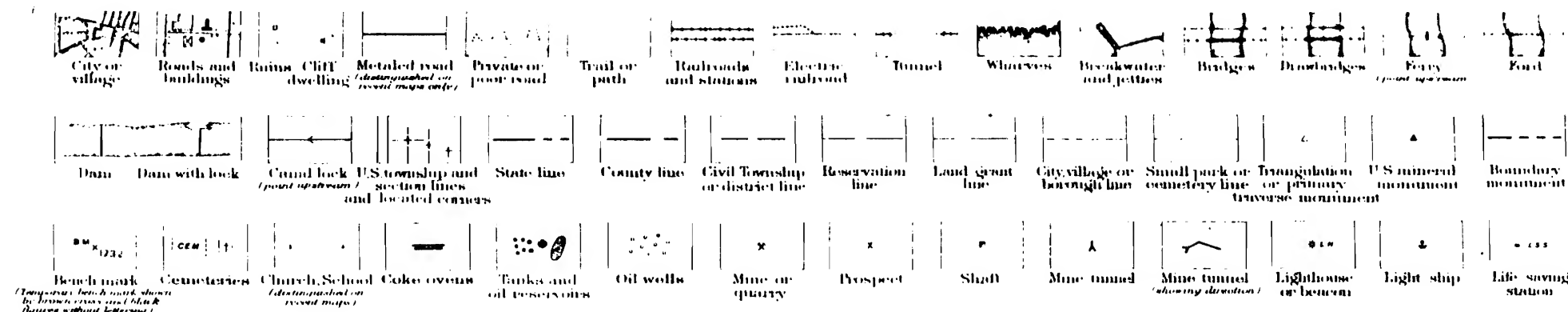
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

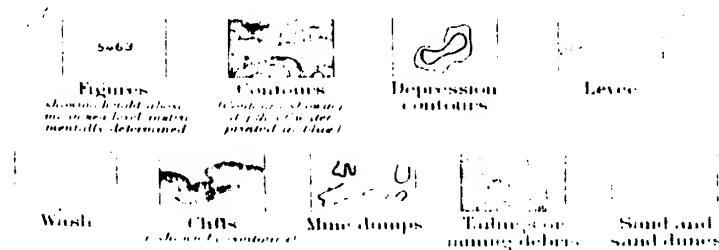
January 1914

## CONVENTIONAL SIGNS

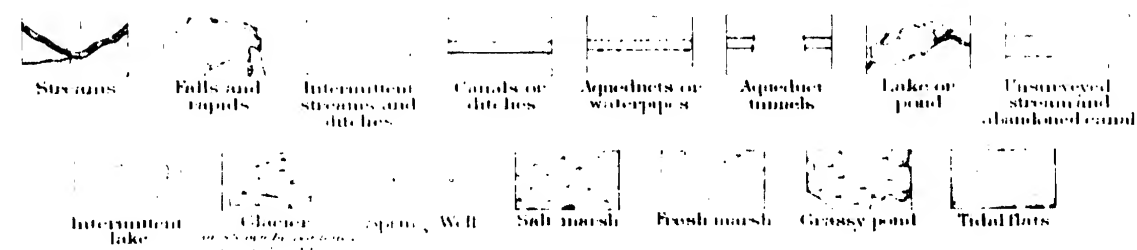
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)

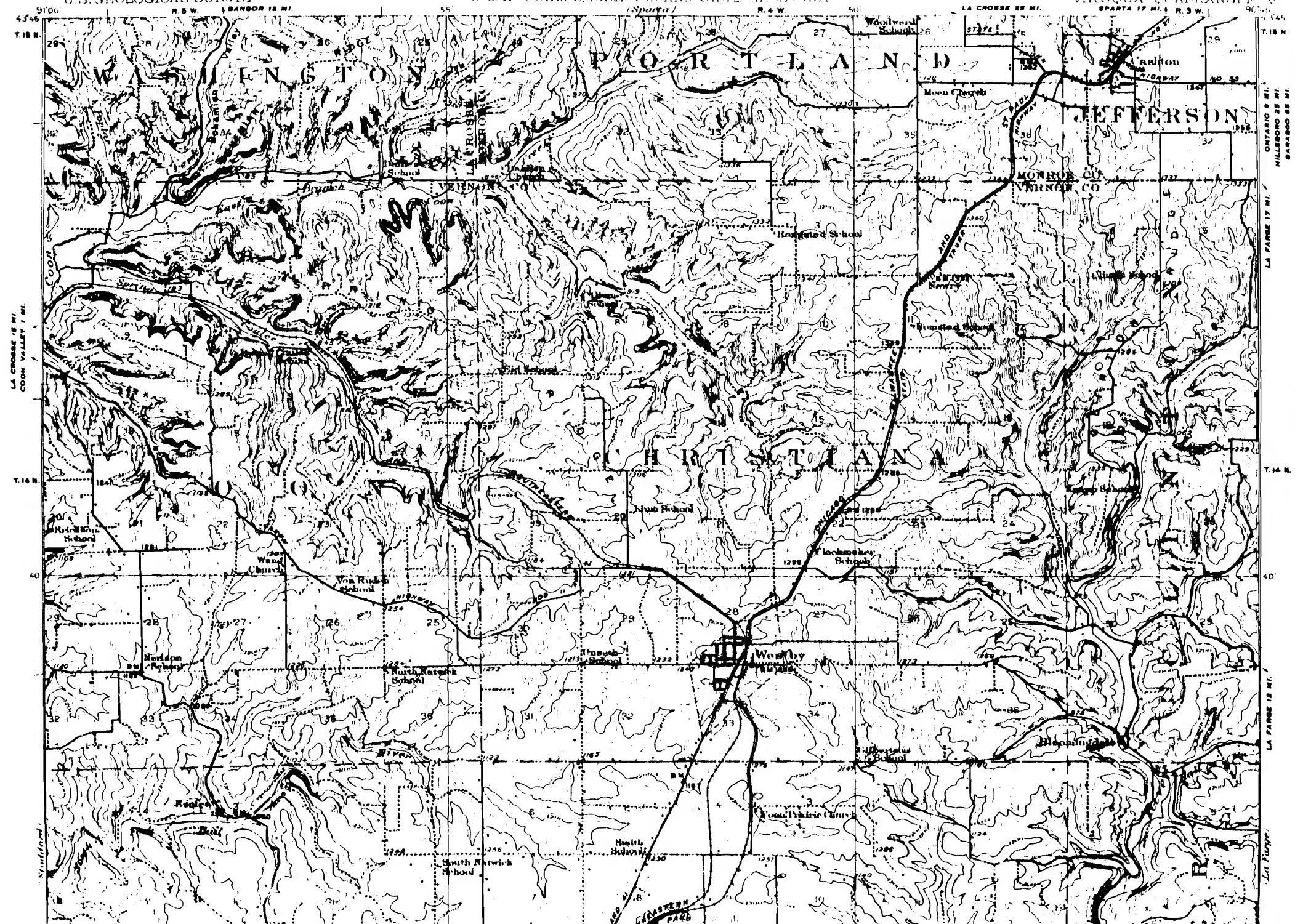


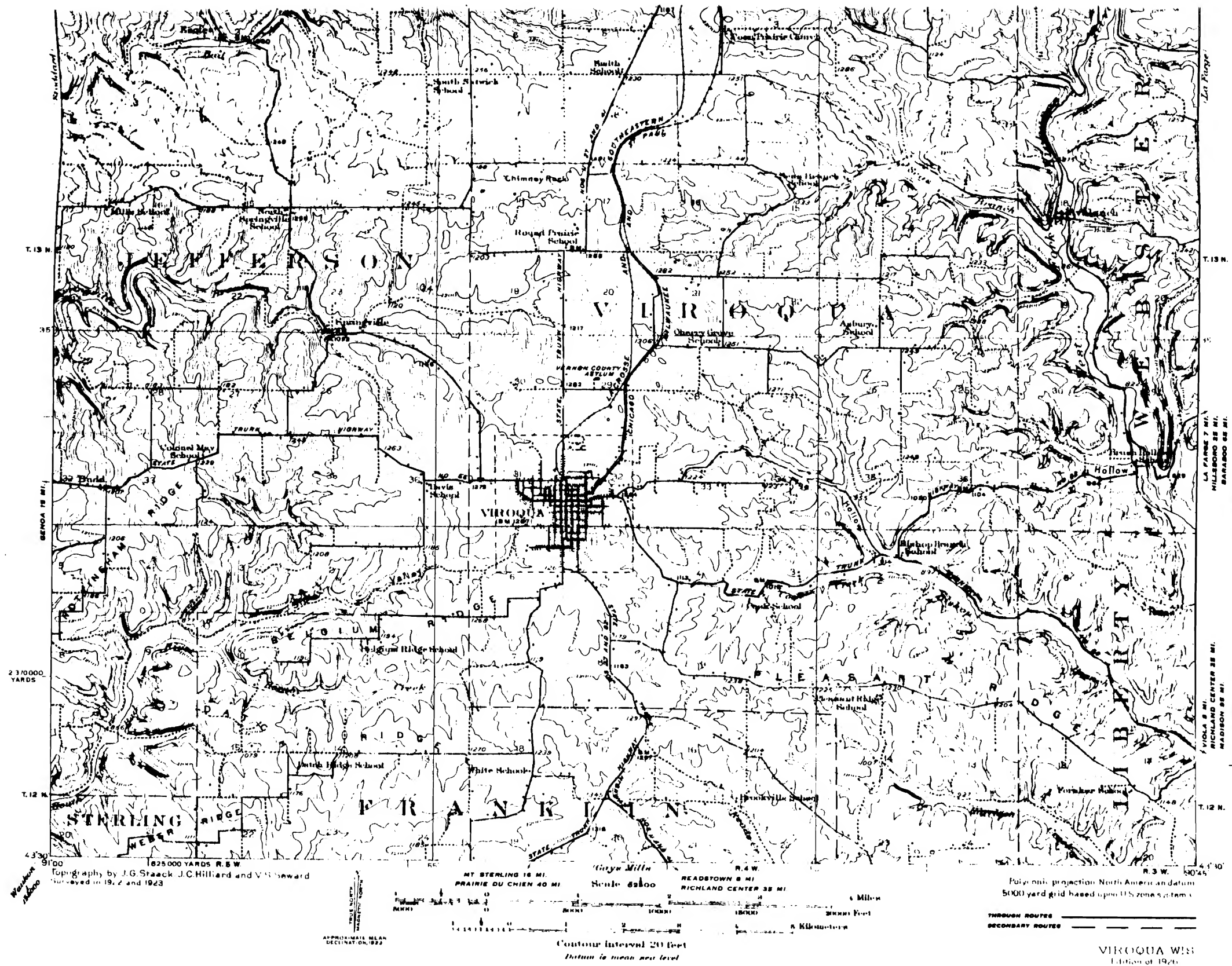
### WOODS (when shown, printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HUTCHINGS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN  
VIROQUA QUADRANGLE







## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

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Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys for the United States proper and the resulting maps have for many years been divided into three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{31,250}$  (1 inch = one-half mile), with a contour interval of 1, 5, or 10 feet.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{62,500}$  (1 inch = nearly 1 mile), with a contour interval of 10 to 25 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, are made with sufficient accuracy to be used in the publication of maps on a scale of  $\frac{1}{125,000}$  (1 inch = nearly 2 miles), with a contour interval of 25 to 100 feet.

A topographic survey of Alaska has been in progress since 1898, and nearly 37 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$ , or about 10 miles to an

boundary. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on some maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

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The features shown on these maps may be arranged in three groups: (1) water, including rivers, lakes, rivers, canals, swamps, and other features of water; (2) land, including mountains, hills, valleys, and other features of the land; (3) other features, including roads, railways, and other features.



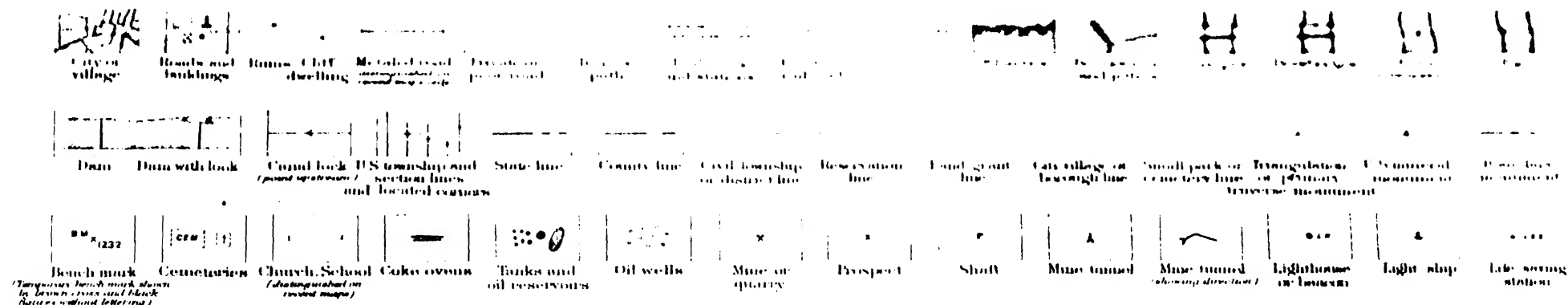
The sketch represents a river valley that lies between two hills. In the foreground is the river, the way that is partly covered by a road. The hills are represented by two simple shapes.

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[illegible]

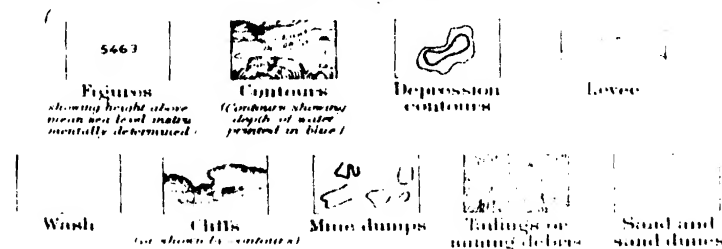
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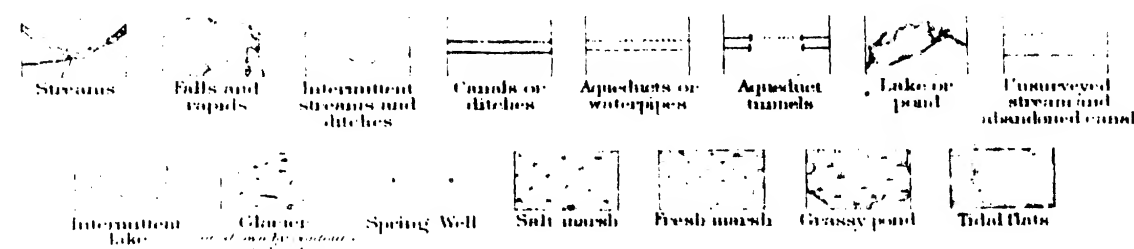
## RELIEF

(printed in brown)



## WATER

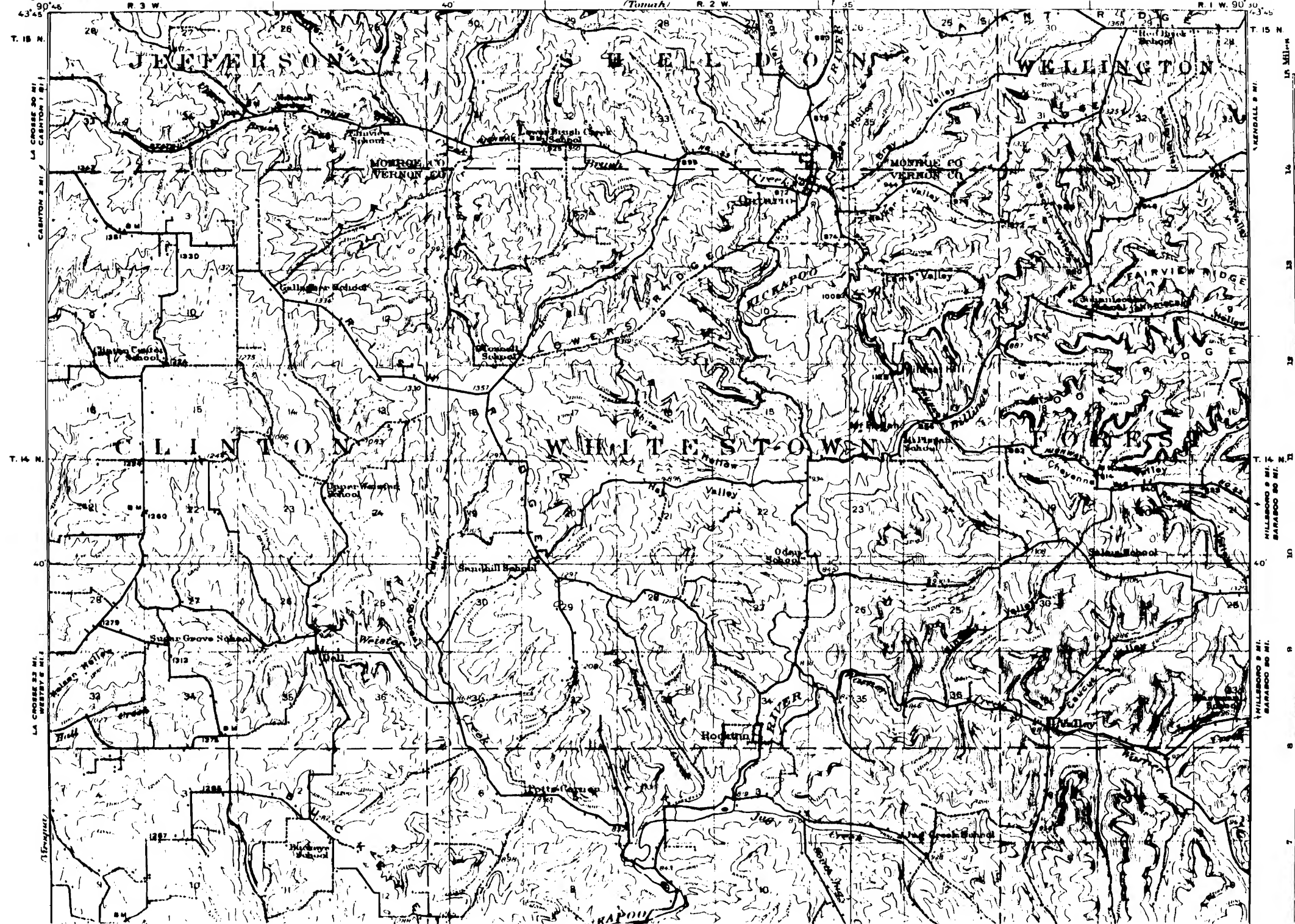
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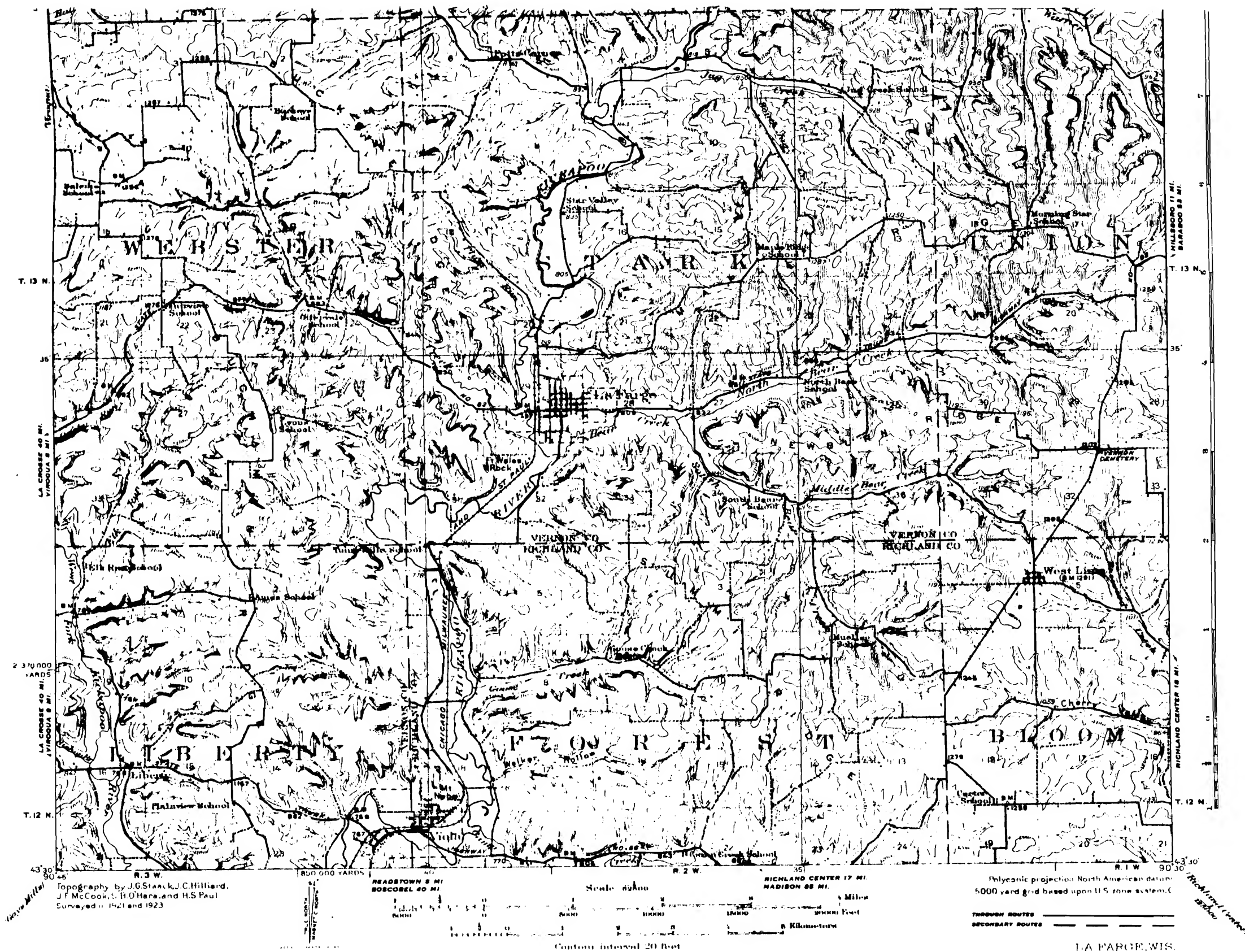


## WOODS

(when shown, printed in green)

WISCONSIN  
LA FARGE QUADRANGLE





Topography by J.G. Staack, J.C. Hilliard,  
J.F. McCook, L.H. O'Hara, and H.S. Paul  
Surveyed in 1921 and 1923

Scale 1:250,000

Richland Center 17 mi.  
Madison 88 mi.

Physiographic projection North American datum  
5000 yard grid based upon U.S. zone system C

THROUGH ROUTES  
SECONDARY ROUTES

LA FARGE, WIS.



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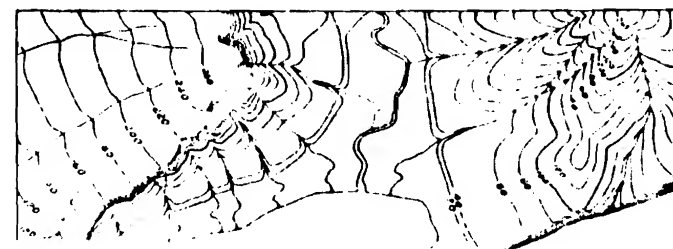
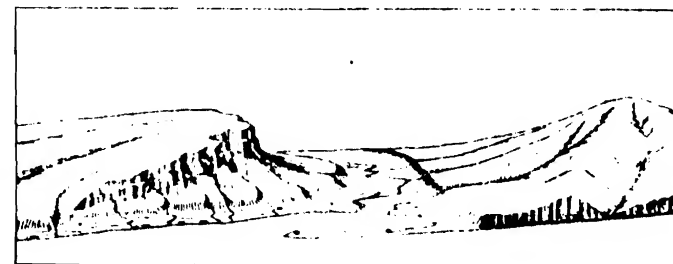
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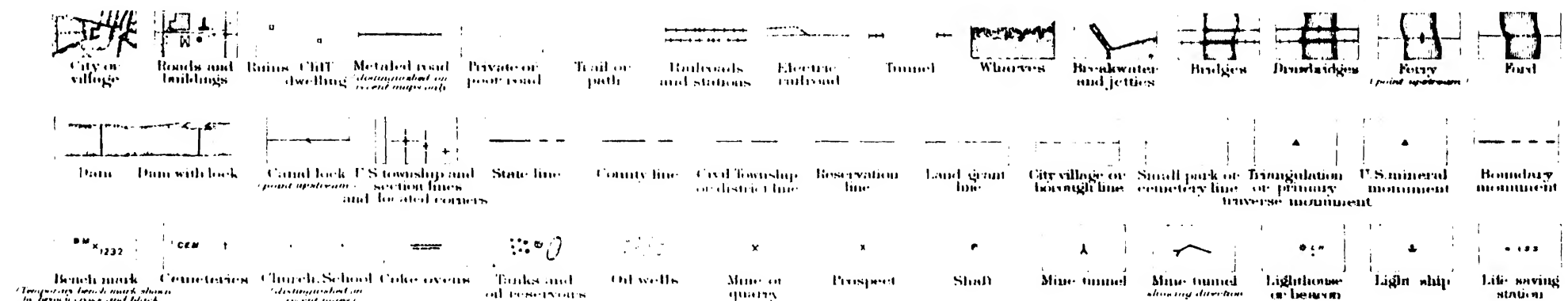
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THE DIRECTOR,  
United States Geological Survey,  
Washington, D. C.

January, 1924.

## CONVENTIONAL SIGNS

### CULTURE (printed in black)



### RELIEF (printed in brown)

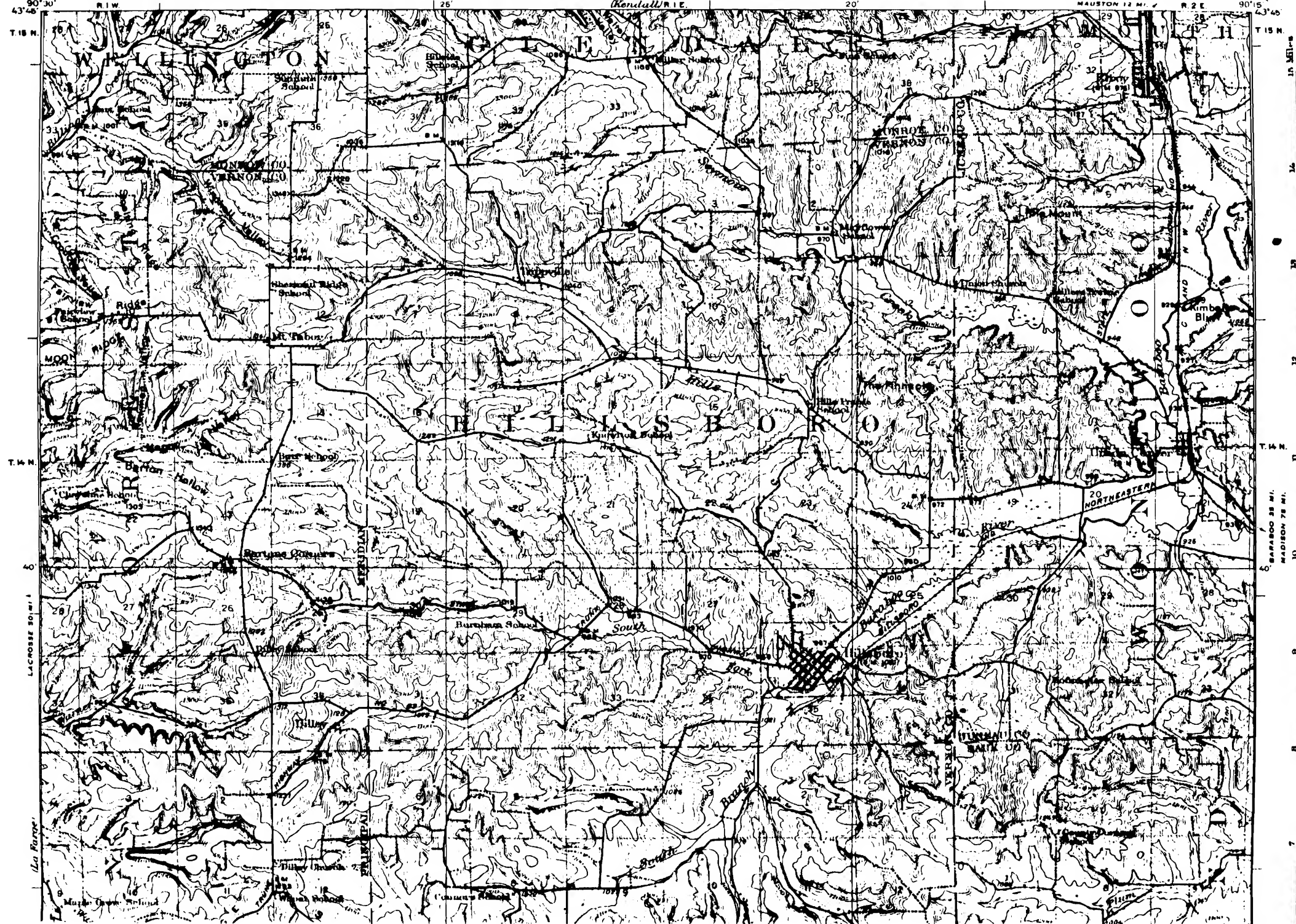


### WOODS (when shown printed in green)

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN  
HILLSBORO QUADRANGLE



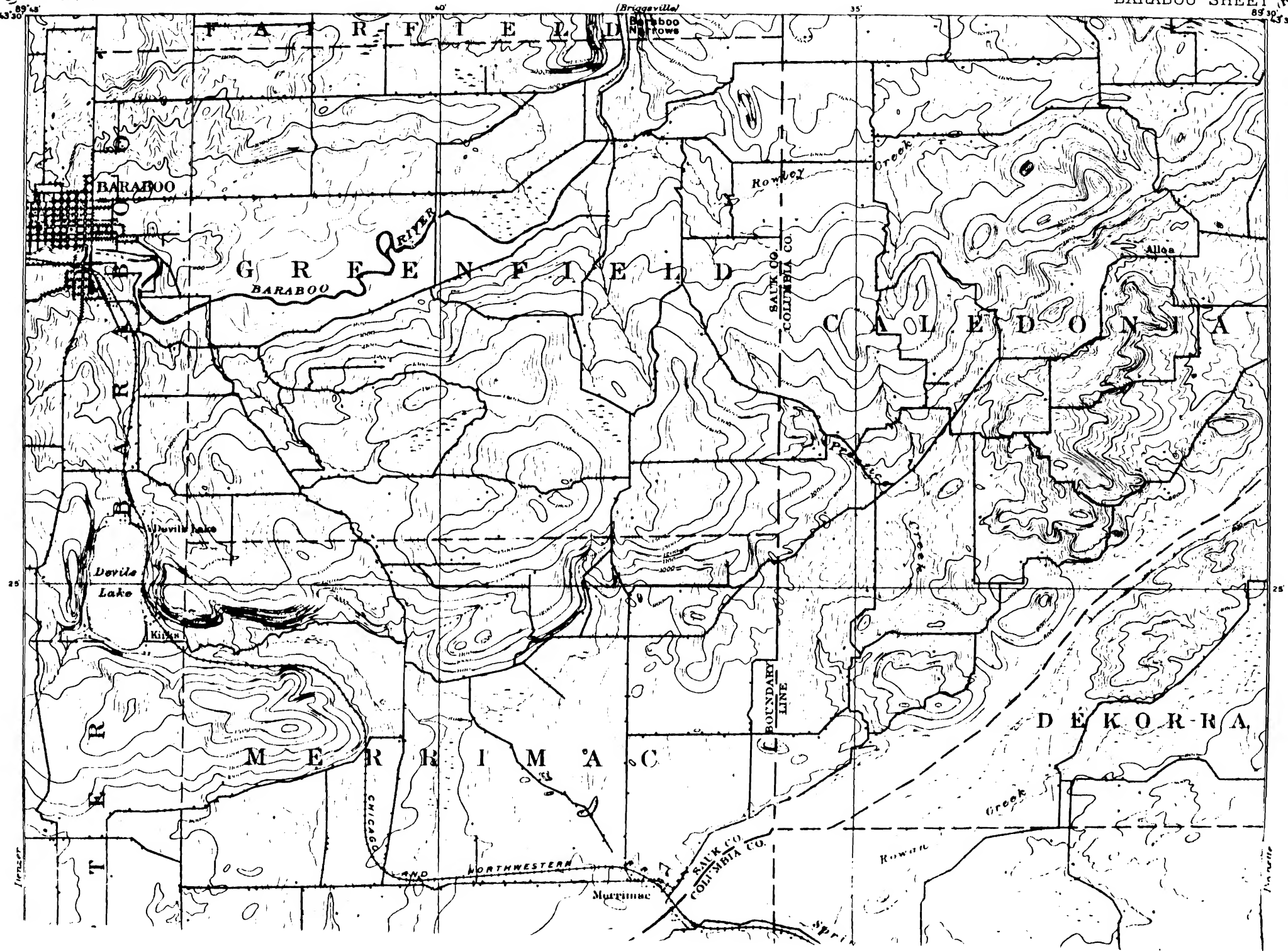


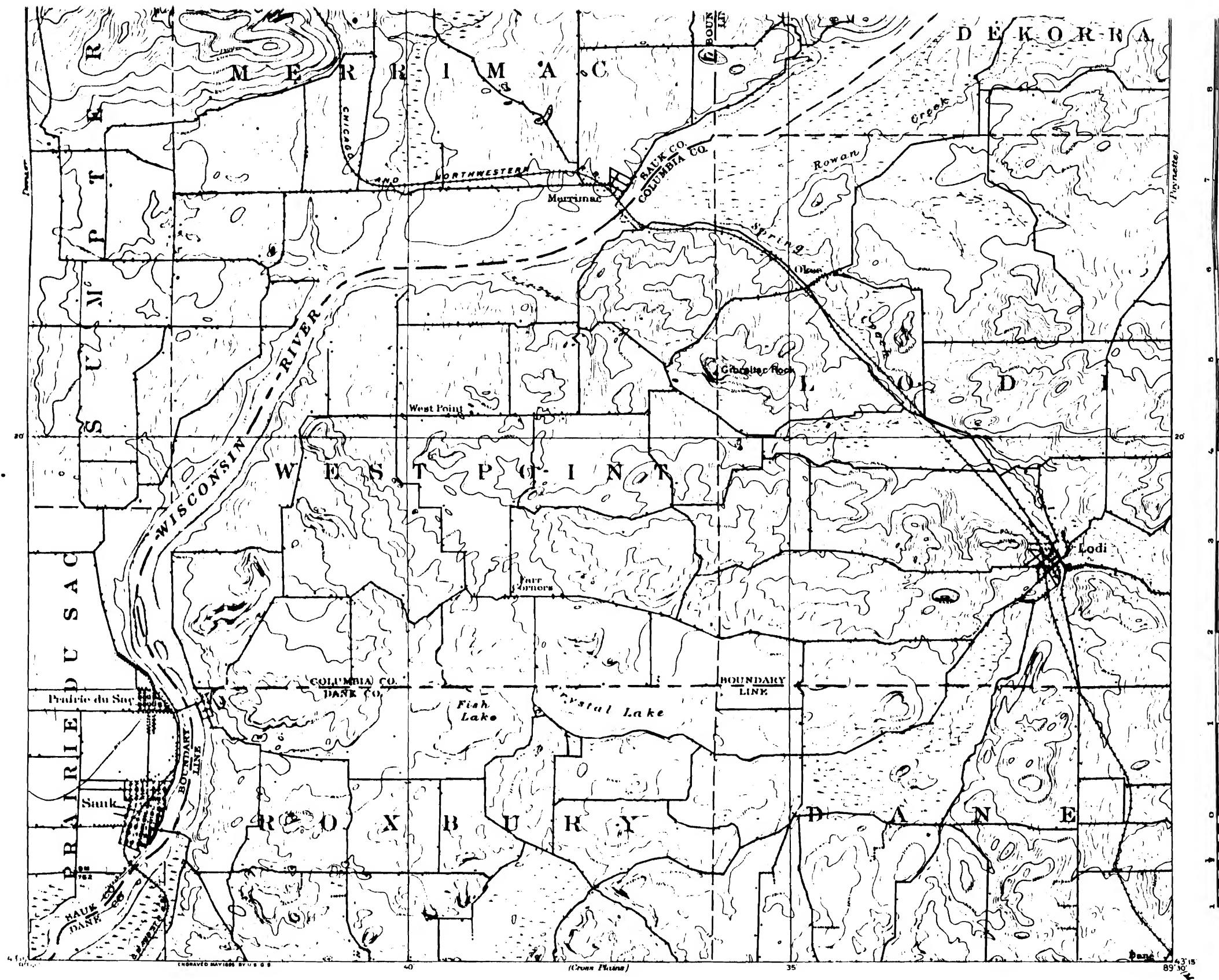




DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY

WISCONSIN  
BARABOO SHEET





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The standard scales used on these maps are multiples of the fraction  $\frac{1}{62,500}$ . Quadrangles in thickly settled or industrially important regions are mapped on a scale of  $\frac{1}{62,500}$  or about 1 mile to an inch, and cover areas measuring 15' in latitude and longitude. Quadrangles in less thickly settled or industrially less important districts are mapped on a scale of  $\frac{1}{125,000}$  or about 2 miles to an inch, and cover areas measuring 30' in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of  $\frac{1}{250,000}$  or about 4 miles to an inch, covering areas measuring 1° in latitude and longitude. Maps for special purposes are made on scales larger than  $\frac{1}{62,500}$ .

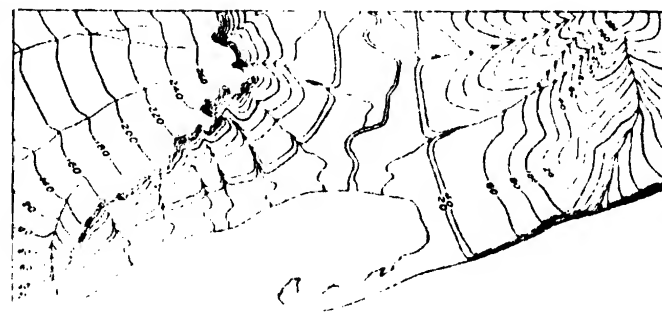
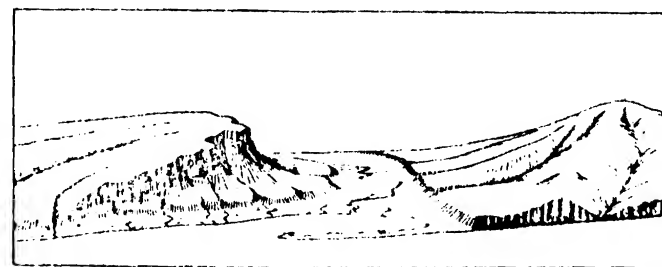
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Each quadrangle is designated by the name of the principal city, town, or natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,800 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States.

Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price

A topographic survey of Alaska has been in progress since 1898, and nearly 25 per cent of the area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$ , but about 8,500 square miles has been mapped on a scale of  $\frac{1}{250,000}$ .

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep escarp, from which it slopes down.

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Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

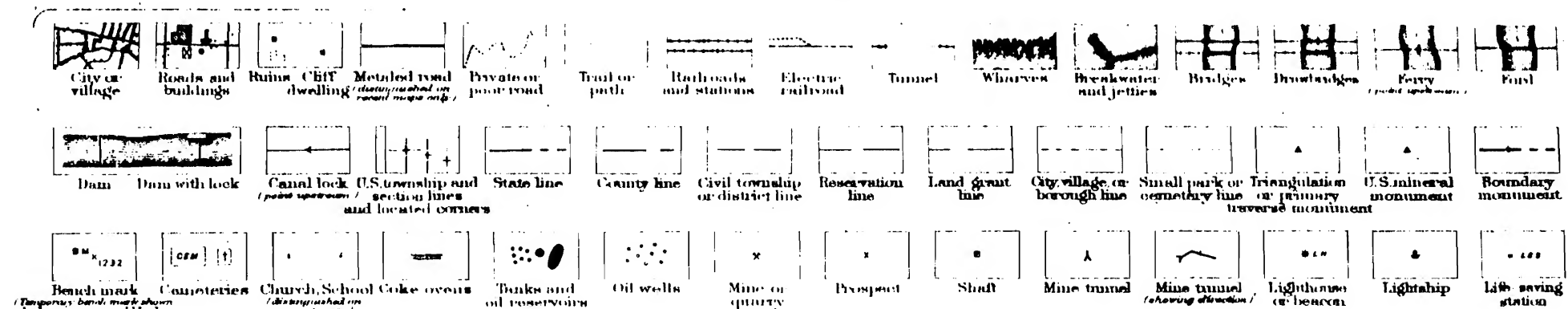
THE DIRECTOR,

United States Geological Survey,  
Washington, D. C.

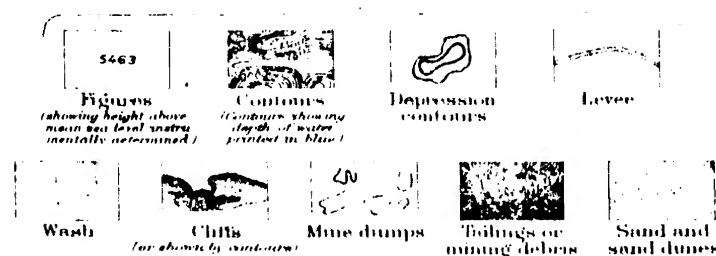
November, 1919.

## CONVENTIONAL SIGNS

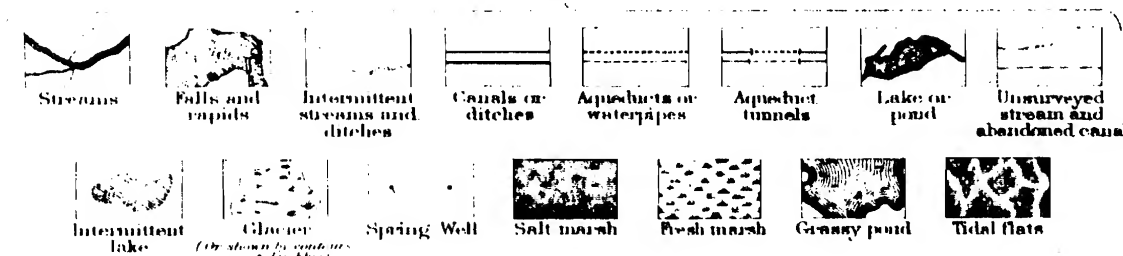
### CULTURE (printed in black)



### RELIEF (printed in brown)



### WATER (printed in blue)



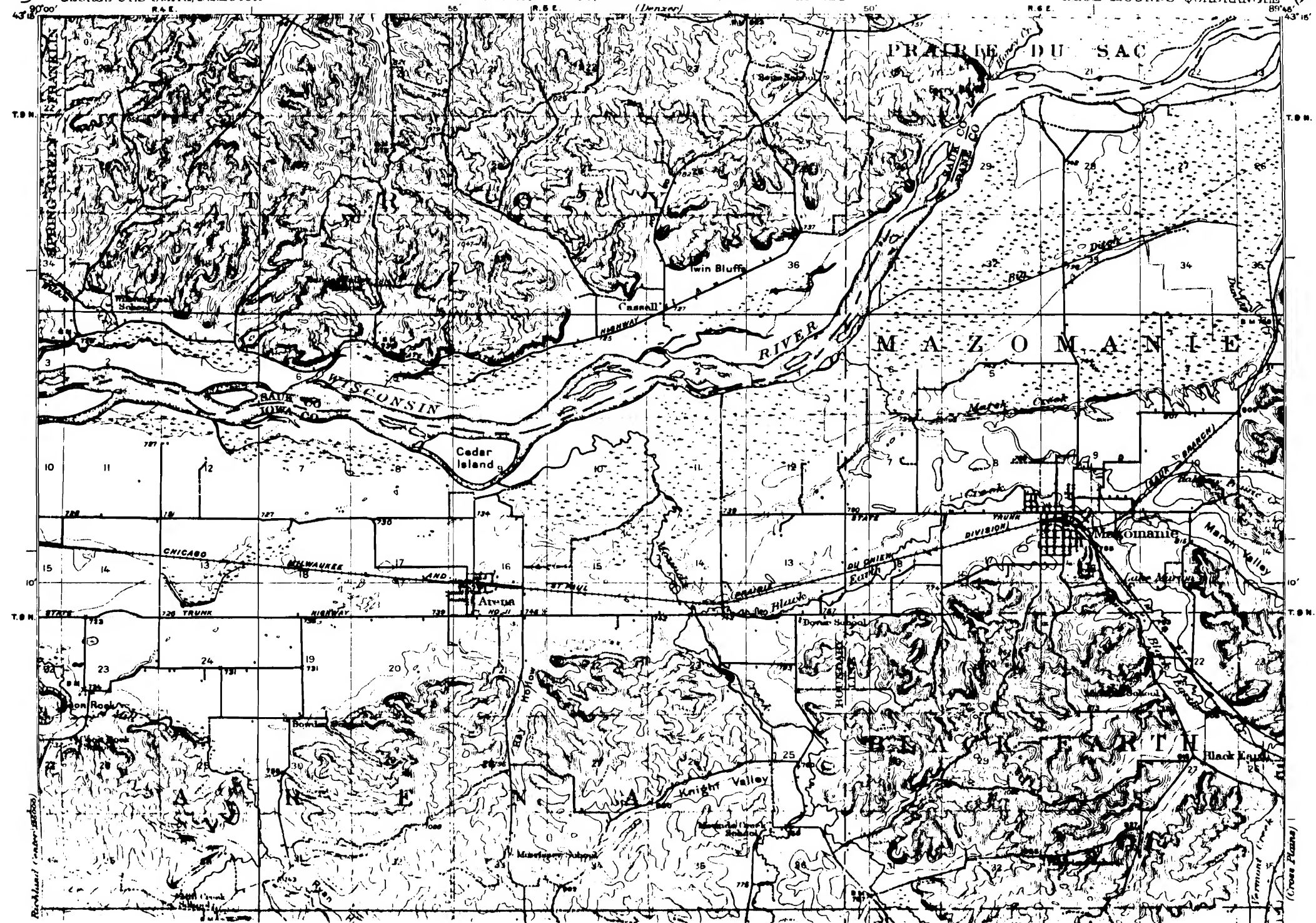
### WOODS (when shown, printed in green)

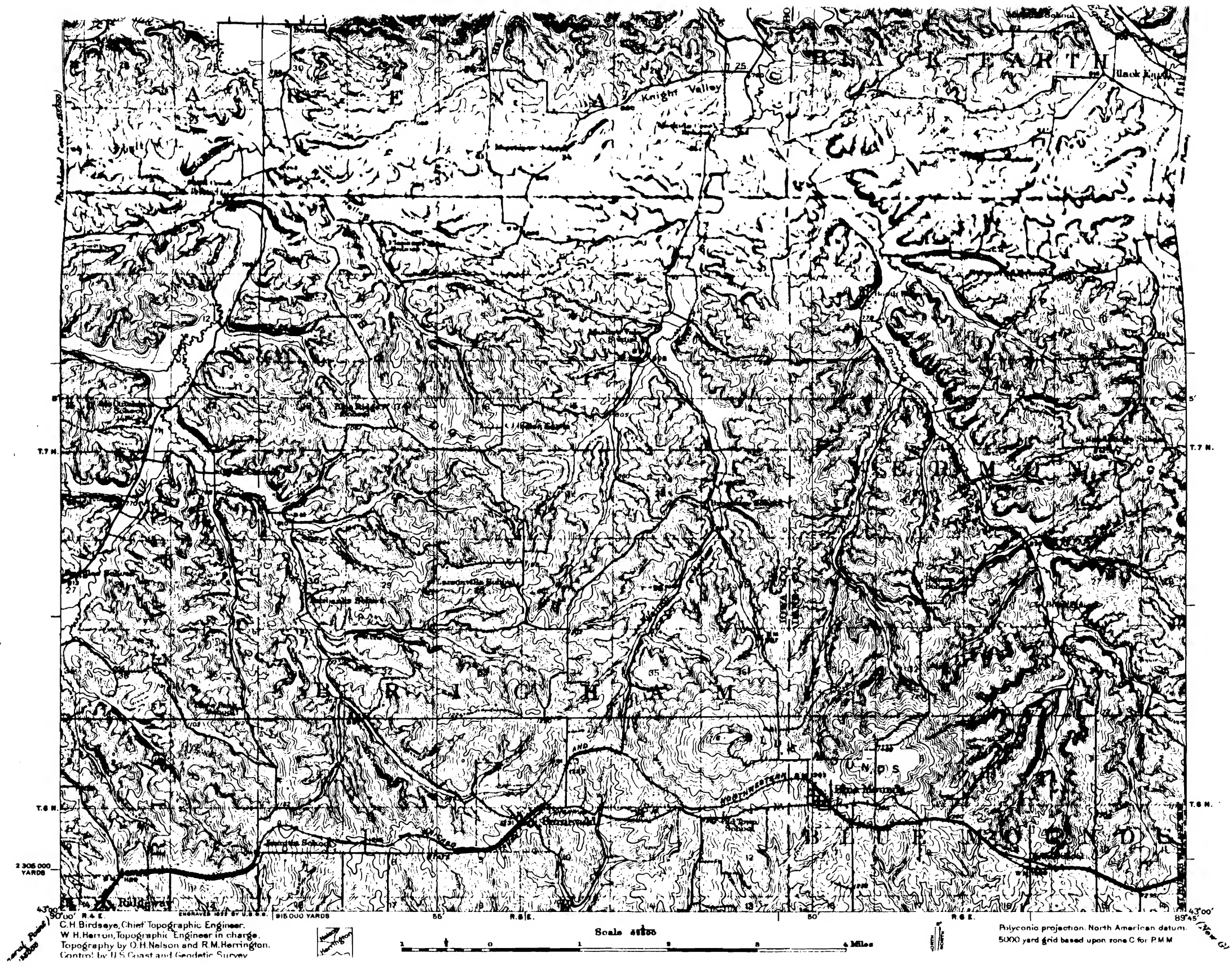


DEPARTMENT OF THE INTERIOR  
ALBERT H. FALL, SECRETARY  
U.S. GEOLOGICAL SURVEY  
GEORGE OTIS SMITH, DIRECTOR

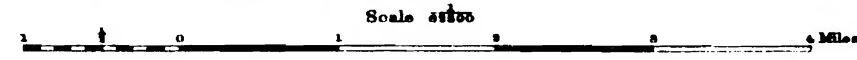
TOPOGRAPHY  
STATE OF WISCONSIN  
GEOLOGICAL AND NATURAL HISTORY SURVEY  
W. O. HOTCHKISS, DIRECTOR AND STATE GEOLOGIST

WISCONSIN  
BLUE MOUNDS QUADRANGLE





C. H. Birdseye, Chief Topographic Engineer.  
W. H. Herron, Topographic Engineer in charge.  
Topography by O. H. Nelson and R. M. Herrington.  
Control by U. S. Coast and Geodetic Survey.



Polyconic projection, North American datum.  
5000 yard grid based upon zone C for P.M.M.



## THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps or atlas sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for any quadrangle depending on its nature and its probable future development, and consequently though the standard atlas sheets are of nearly uniform size they represent areas of different sizes. On the lower margin of each sheet are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a representative fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale  $\frac{1}{62,500}$  means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

The standard scales used on these maps are multiples of the fraction  $\frac{1}{62,500}$ . Quadrangles in thickly settled or industrially important regions are mapped on a scale of  $\frac{1}{62,500}$  or about 1 mile to an inch, and cover areas measuring 15' in latitude and longitude. Quadrangles in less thickly settled or industrially less important districts are mapped on a scale of  $\frac{1}{125,000}$  or about 2 miles to an inch, and cover areas measuring 30' in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of  $\frac{1}{250,000}$  or about 4 miles to an inch, covering areas measuring 1° in latitude and longitude. Maps for special purposes are made on scales larger than  $\frac{1}{62,500}$ .

A topographic survey of Alaska has been in progress since 1898, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{62,500}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{125,000}$  but about 3,500 square miles has been mapped on a scale of  $\frac{1}{62,500}$ .

A large part of the Hawaiian Islands has been surveyed, and the results are published on a scale of  $\frac{1}{62,500}$ .

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in mapping only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour, for example, would be the shore line if the sea should rise 20 feet. Contour lines show the shapes of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins that are issued free by the Geological Survey.

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of scale of about 6 miles to an inch. The maps are made on scales larger than this.

A topographic survey of Alaska has been in progress since 1898, and nearly 85 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{250,000}$  or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{100,000}$ , but about 3,500 square miles has been mapped on a scale of  $\frac{1}{50,000}$ .

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{100,000}$ .

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The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a head of a river. On each side of the valley is a town, and the river flows into the sea. The sketch is a simple line drawing showing the basic features of a river valley.

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THE DIRECTOR  
United States Geological Survey  
Washington, D. C.

### CONVENTIONAL SIGNS

UNITED STATES GEOLOGICAL SURVEY

Dam	Dam with lock	Canal lock (passenger)	P.S. township and section lines and located corners	State line	County line	Civil township or district line	Reservation line	Land grant line	City, village, or borough line	Small park or cemetery line	Township line or primary traverse monument	U.S. mineral monument	Boundary monument	
Beach mark (Temporary beach mark shown by brown lines and black figures without lettering)	Cemetery	Church, school (shown on special maps)	Coke ovens	Tanks and oil reservoirs	Oil wells	Mine or quarry	Prospect	Shaft	Mine tunnel	Mine tunnel (showing direction)	Lighthouse on tower	Lighthouse	Life-saving station	

### RELIEF (printed in brown)

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### WATER (printed in blue)


### WOODS (when shown, printed in green)